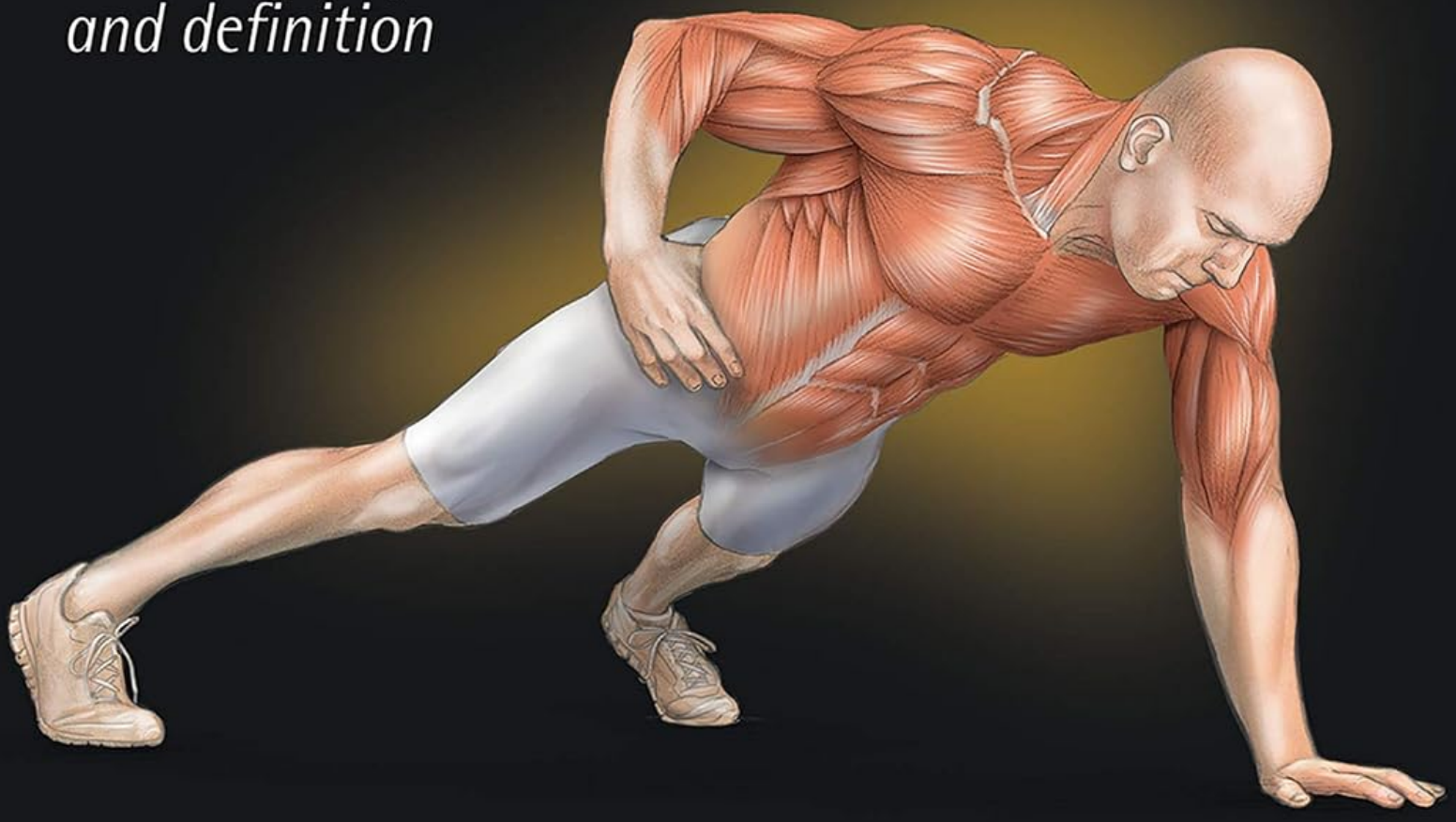
BODYWEIGHT STRENGTH TRAINING Anatomy

Your illustrated guide to strength, power, and definition



BRET CONTRERAS

Second Edition

BODYWEIGHT STRENGTH TRAINING ANATOMY

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Your illustrated guide to using your body to train your body

BRET CONTRERAS

SECOND EDITION

Bodyweight Strength Training Anatomy

Bret Contreras

HUMAN KINETICS

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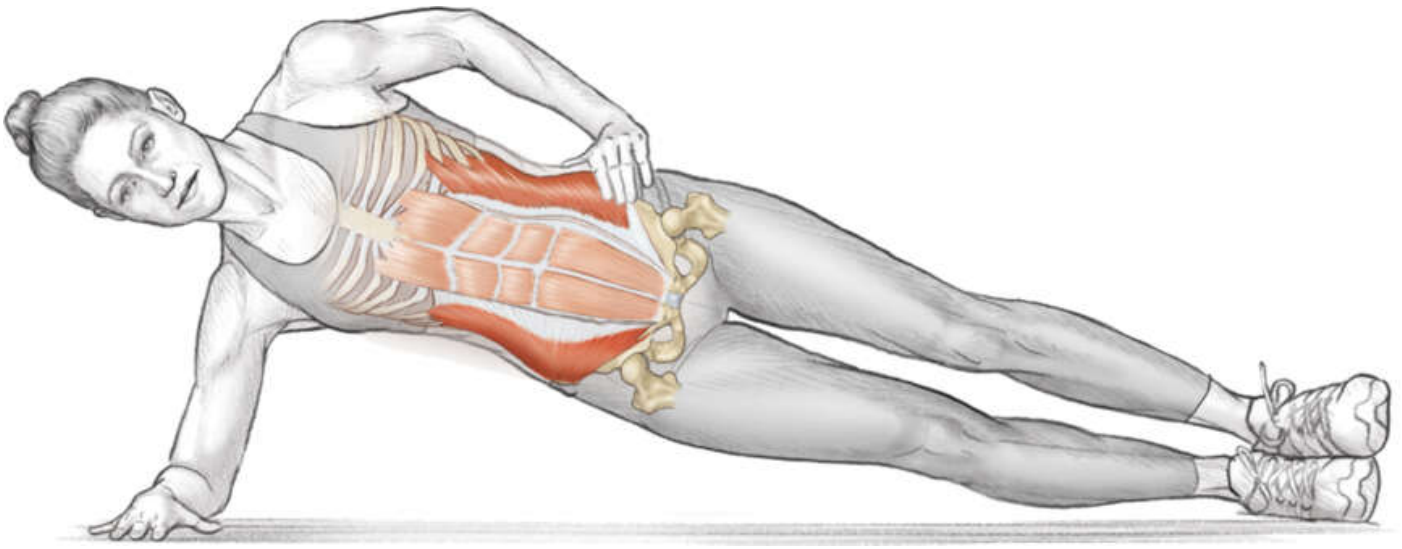

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PREFACE

Because you're reading this book, I think it's safe to say that you're interested in learning how to build strength and fitness through bodyweight training. That's great! You've come to the right place.

I've never taken more than a few days off from strength training over the last 34 years. Although I've trained in hundreds of amazing gyms, studios, and facilities, on many occasions, I've had to make do with what I had in my house, apartment, or hotel room. When I first started training with weights at age 15, I didn't know what I was doing. I remember feeling awkward, uncomfortable, and uncoordinated with many exercises. I even avoided most multijoint exercises because I didn't feel them working the way I felt isolation exercises working. Looking back, I realize that I was a skinny weakling who possessed extremely inferior levels of core stability, single-leg stability, and motor control. I simply wandered around aimlessly without a plan, moving randomly from one exercise to another.

At first, I couldn't perform push-ups, so I didn't bother trying them. In fact, I couldn't perform a chin-up, dip, or inverted row either. I suspect that had I attempted a bodyweight full squat, my back would have rounded and my knees would have caved in (the melting-candle syndrome) because my glutes were incredibly weak and I had no knowledge of proper form. It took me five years to be able to perform a bodyweight chin-up and dip.

I've spent decades learning as much as I can possibly learn about the human body and strength and conditioning. Had I known then what I know now, I could have achieved my result several years sooner by sticking to a proper exercise progression system and program template. I could have been performing chin-ups and dips within my first year of training had I possessed a sound understanding of form, exercise progression, and program design. I want to go back in time to help my younger, confused (but determined) self. I wish that the current me could mentor the former me and teach him the ropes.

Fast-forward to now: I feel great, my joint health is outstanding, my strength levels are highly advanced, and my muscle control is superior. I'm now able to achieve an amazing workout using just my own body weight and simple household furniture. I lean my back on couches to work my glutes. I hang on to tables and chairs to work my back, arms, and legs. And all I need is the ground to work my chest, shoulders, legs, and core.

I believe that everyone should master their own body weight as a form of resistance before moving on to free weights and other training systems. Bodyweight exercises lay the foundation for future training success, and correct performance requires a precise blend of mobility, stability, and coordination. As you progress and gain strength, it is possible to continue to push yourself through bodyweight training so you continue to challenge the muscles and increase your athleticism. To do that, you need to learn the exercises and have a road map to help get you there.

Bodyweight Strength Training Anatomy was written for these people:

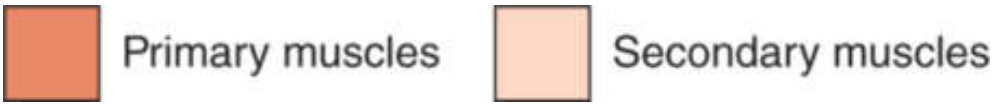
- Beginners who need to learn the basics of bodyweight training. Everyone knows about push-ups and squats, but not everyone knows about single-leg hip thrusts, RKC planks, and inverted rows. These exercises should be staples of every routine.
- Folks who want to be in great shape but don't like going to a gym. If this describes you, rest assured that you will always be able to receive an amazing workout, no matter where you are.
- Fit exercisers who do a lot of traveling. Sure, it's nice to have access to hundreds of thousands of dollars of strength training equipment, but if you're frequently on the road, you know that this option is not always feasible.
- All strength training enthusiasts. Regardless of whether you're a weekend warrior, athlete, lifter, coach, trainer, or therapist, if your line of work involves fitness, then you need to understand bodyweight strength training. Strength training enthusiasts may have specific fitness goals, such as improving functional strength, gaining muscle,

losing fat, or improving posture. Bodyweight training will help each of these people achieve those goals.

Here is how I have arranged the book: Chapter 1 introduces bodyweight training. Chapters 2 through 9 discuss functional anatomy and its role in sports and aesthetics. They have the best bodyweight exercises for these muscle groups: arms, shoulders and neck, chest, core, back, thighs, glutes, and calves. Finally, in chapter 10, the most important chapter of all, I teach you the basics of program design and provide several sample templates for you to follow.

Bodyweight Strength Training Anatomy features drawings, instructions, and descriptions of over 175 exercises for you to reference. As you progress in strength, you'll be able to advance from easier to more difficult exercise variations, and I include a rating system to help you determine the difficulty level for each exercise.

Unique to *Bodyweight Strength Training Anatomy* are detailed pictures to help you identify the muscle groups and muscle parts that are stressed during an exercise. Research has shown that it is possible to target a particular area of a muscle, but to do so, it is essential to be aware of the muscle so that you can target that region while training. Primary and secondary muscles featured in each exercise are color-coded within the anatomical illustrations that accompany the exercises to help you develop your mind–muscle connection.



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I would like to thank my good friend Dr. Brad Schoenfeld. He not only recommended me to Human Kinetics but also provided much-needed expertise as I worked my way through the publication of my first book. Simply having Brad proofread and edit each chapter made the book 30 percent better because Brad is a much better writer than I am.

In addition, I'd like to thank my friends and colleagues Katie Coles, Rob Knapp, and Ashley Hodge for serving as the models for the exercise drawings. It makes the book even more special to me when it's filled with images of people I know.

I'd also like to thank Kevin Butler for his assistance on this project. Kevin has worked with me for many years and was able to help with the exercise descriptions, which can be a very mundane task.

Last, I'd like to thank Roger Earle, senior acquisitions editor for Human Kinetics. If it weren't for him, this second edition would not have taken place. He stayed on me, worked around my schedule, and made the process as seamless as possible to make it come to fruition.

You are all highly appreciated!

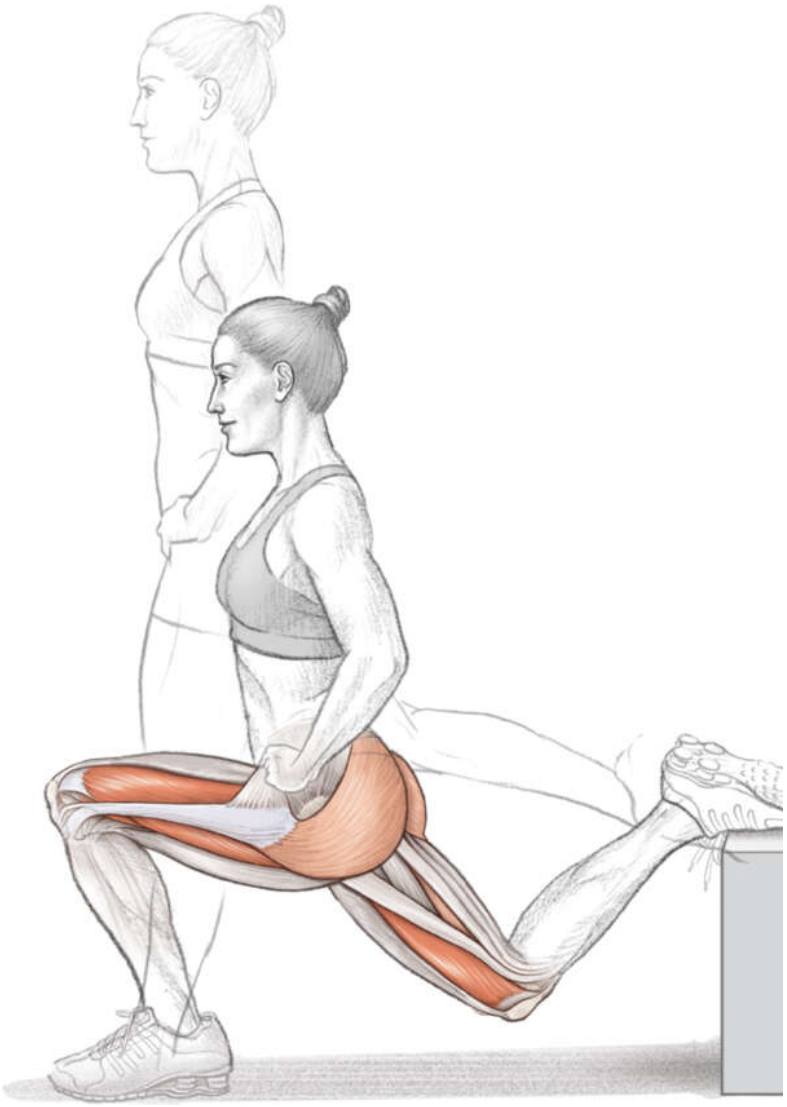
CHAPTER 1

The Bodyweight Challenge

Many books have been written about bodyweight training. Most include a compendium of common exercises for bodyweight training, but a large collection of exercises is only part of the package. The results you achieve depend on many factors, and it's important to perform the best exercise variations and adhere to a well-balanced routine.

Although I've been resistance training for over 34 years, I've spent the past two decades delving into the world of strength and conditioning. I've learned from the world's best coaches, biomechanists, physical therapists, and researchers. I even moved to New Zealand so I could study under Professor John Cronin and obtain my doctoral degree. Now, I train dozens of high-level clients at my two Glute Lab gyms. I also conduct experiments and publish research. I speak from experience: When you've been in the game for long enough, you can simply glance at a program and know right away whether it is efficient and will deliver optimal results.

When it comes to program design, I trust strength coaches over just about anyone. They have a vested interest in optimizing their athletes' strength, power, and conditioning and must consider the crucial issues of joint health and longevity. Their job is to put together sound programs that will ensure progression while preventing dysfunctional adaptations and injuries.



Pushing and Pulling

It's important to understand that bodyweight training is highly skewed toward pushing (also called *pressing*) over pulling. Because of the wonders of gravity, all it takes to get a great pressing workout is to sink your body toward the ground and then push your body upward. Think of squats, lunges, push-ups, and handstand push-ups. You should definitely perform these pressing movements. But what about pulling movements? You can't grip the ground and pull yourself anywhere.

Bodyweight pulling exercises require a pull-up bar, suspension system, or sturdy pieces of furniture if other equipment is unavailable. You can maneuver your body around the furniture to strengthen the pulling muscles that provide structural balance to your body and counteract the postural adaptations the pressing movements impose.

Chin-Up Bars and Suspension Systems

You may find it more comfortable to perform pull-up and row variations from an actual chin-up bar and suspension system instead of a solid and sturdy door, rafter, or table. Consider making your own chin-up bar or inverted row station or purchasing one. These days, you can find plenty of models that you can simply install right above a doorframe. Then you can perform the movements using different grips with more natural movement.

Nearly all the at-home bodyweight programs I've seen are slanted toward pressing movements. Although these pressing exercises are effective, programs must devote equal attention to exercise order as well as the number of exercises, sets, and repetitions dedicated to pulling movements or structural imbalances may result. Quadriceps dominance and knee pain, rounded shoulders and shoulder pain, and anterior (forward) pelvic tilt and lower-back pain are just some of the negative effects that someone could experience after following a poorly designed program for years.

I took on the challenge of writing and updating this book for four reasons. First, a high-quality bodyweight training book centered on proper exercise selection and balanced program design was sorely needed in the industry. Second, I'm passionate about bodyweight training. I don't believe that anyone else has devoted as much consideration to bodyweight exercises for the muscles on the back of the body. As I said earlier, it's easy to work the muscles on the front of the body with bodyweight training because these are the pushing muscles. But an athletic and fit person requires strong muscles on the back of the body as well, and the bodyweight pulling exercises that work these muscles aren't so straightforward. They require creativity.

Third, I specialize in glute training and believe that the glutes are critical for optimal body function and injury prevention. If I can raise awareness about the numerous effective bodyweight glute exercises there are, then more people will strengthen their glutes, and my job will be done. And finally, I thought I knew all there was to know about bodyweight strength training the first time I wrote this book in 2012. However, something devastating happened in 2020: the world went on lockdown during the COVID-19 pandemic, and suddenly everyone had to resume their strength training regimens at home.

While tragic and frightening, something good did come out of it. We expanded our bodyweight exercise repertoire as an industry. These exciting new exercises are in this second edition. I hope those of you who purchased the first edition enjoy the updates!

The Bodyweight Advantage

People love being able to train efficiently in the convenience of their own homes. Most fitness enthusiasts have gym memberships and depend on machines and free weights to work their muscles. While I'm a huge proponent of using all types of resistance, bodyweight training is, without a doubt, the most convenient type of resistance. All you need is your own physical being, and you'll never be without equipment or a facility, and you'll never need a spotter. In other words, if you learn to use your body as a barbell, you'll always be able to obtain a great workout. You can

gain tremendous functional fitness in terms of strength, power, balance, and endurance from progressive bodyweight training, and research indicates that you can enhance your flexibility to the same or even a greater degree through resistance training than you can from a stretching routine.

I like to watch all types of athletes train. As a strength coach, I've watched thousands of athletes lift weights. Two types of athletes have always stood out to me in terms of superior muscular control: gymnasts and bodybuilders. In awe, I watch gymnasts on the rings or the pommel horse maneuvering their body around the apparatus with precision. I watch the bodybuilders concentrate as they contract their muscles against the resistance. When training with body weight, you can learn from these athletes and develop a tremendous mind–muscle connection, allowing you to achieve an amazing workout anywhere you go.

In this book, I will teach you the best bodyweight exercises and show you the most effective way to combine them into cohesive programs consistent with your fitness goals. You will learn how to progress from the simplest variations to the most complicated and advanced bodyweight exercises. You will learn to use your abdominals and gluteals to lock your torso into position and create a stiff pillar of support while you move your limbs. You will become lean, limber, and athletic. Push-ups and pull-ups won't intimidate you. You will move your body up and down through a complete range of motion using the power of just one leg at a time. Your glutes will function like never before, and the confidence you gain from this program will shine through in every aspect of your life.

You will never fear having subpar training sessions when you go on vacation because you'll be able to perform an effective workout from the comfort of your hotel room. If you find yourself without a vehicle or your gym is closed, you won't stress. You'll realize that you don't need barbells, dumbbells, or elastic resistance bands. With sound knowledge of the biomechanics of bodyweight training, you can learn to create just as much force in your muscles as you do if you were performing heavy resistance training.

Better yet, you could save thousands of dollars on gym memberships without compromising the quality of your workout. You could use these savings to make healthier food choices so you can realize even better results from your training—all from the comfort of your own home!

I was recently asked whether I believed that I could maintain my muscularity and fitness solely by performing bodyweight exercises. Without hesitation I answered yes. As you progress to more difficult variations and increase the number of repetitions, you will continuously challenge your neuromuscular system. Your body will respond by synthesizing more protein and laying down more muscle tissue. In essence, your body adapts by building a bigger engine.

Numerous studies have shown that a high number of repetitions can provide a muscle-building stimulus that is just as potent as low reps, and recent research shows that progressing in reps while keeping the load constant is just as effective as progressing in load while keeping the reps constant for muscle growth. Even more, a recent study showed that performing more advanced bodyweight single-leg exercises built the glutes just as effectively as performing increasingly heavier barbell squats. During the 2020 pandemic, many of my clients set bench press personal records their first day back in the gym after spending a few months only doing bodyweight push-ups, proving that you can get "gym strong" without going to a commercial gym.

I'm glad you've decided to take the bodyweight challenge to learn to manipulate your body and achieve a world-class workout. I'm glad that you've decided to no longer be a slave to the gym. Now the world is your gym, and you are the resistance.

Safety First!

Although I will teach you how to perform exercises using standard furniture, I don't want you to be injured if a chair slides or a door comes off its hinges. Remember that standard fitness equipment such as chin-up bars and weight benches are viable options as well. If you do choose to use furniture, every piece of furniture you use when training *must* be secure, stable, and strong. Placing the furniture against a wall or on top of a sturdy rug will prevent it from sliding around. Wedging a book beneath an open door will provide extra support. If there is a chance you might slip and fall, perform the exercise over a soft surface such as carpeting or turf. Test the safety of your setup with one or two repetitions before beginning your full workout. If a setup seems unbalanced or insecure,

switch to a different exercise or explore a safer alternative.

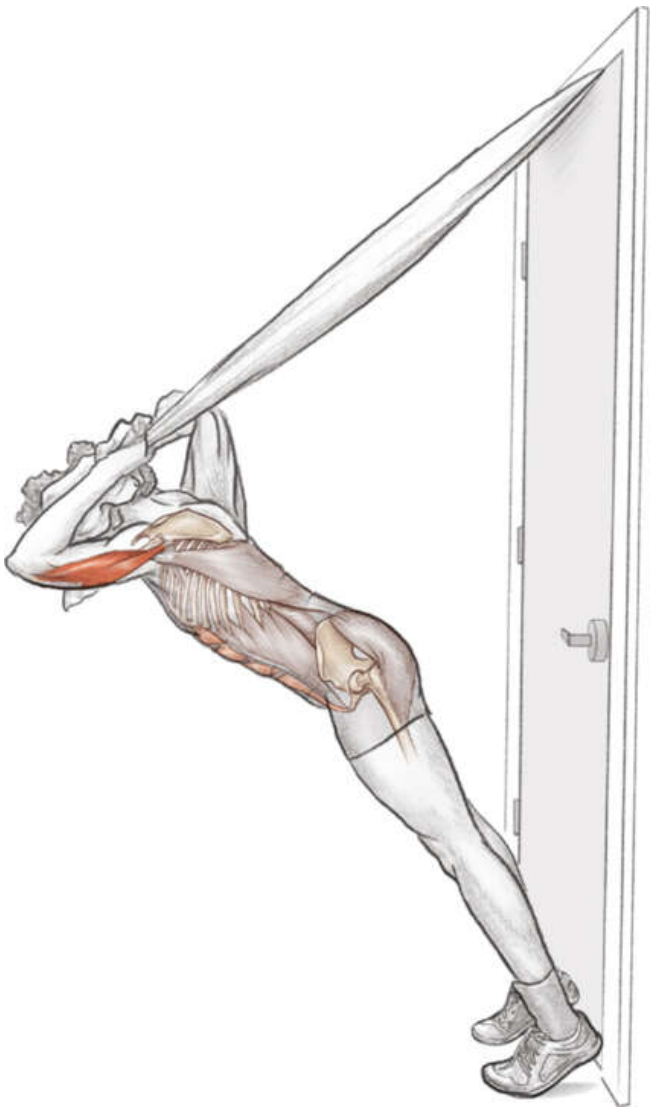
CHAPTER 2

Arms

Many who are new to strength training focus first on arm training. Well-developed biceps and triceps are likely the most coveted muscles. This makes perfect sense. These are the least-covered-up major muscles of the body. Shirts, pants, shorts, and socks conceal most of the torso and legs, but usually the arms are right out in the open, in plain view for everyone to see.

You'd be hard-pressed to find muscles that are flexed more often across the world than the arms, because at any given point, thousands are likely striking the double biceps pose in front of their bathroom mirror. Although the biceps seem to get all the glory, the attractive appearance of the arms requires proper development of the triceps on the back of the arms as well.

Toned arms are an important aspect of a physical aesthetic too, even when muscle size isn't the goal. Toned arms look stunning and healthy, adding value to the look of a sleeveless shirt or dress. Those who are insecure about the appearance of their triceps can firm the area by increasing muscle development through triceps-strengthening exercises.



Muscles of the Arms

To better understand how to best target the arm musculature, let's first delve into basic anatomy.

On the front of the upper arms, you have the elbow flexors. Elbow flexors move the wrist toward the shoulder by bending the arm. The primary elbow flexors are the biceps brachii, which are composed of two heads, a long head and a short head (figure 2.1). Other elbow flexors are the brachialis and brachioradialis. These muscles contribute to movement depending on how the elbow flexion exercise is performed. The biceps brachii is worked most with a supinated (palms up) grip, the brachioradialis with a neutral grip (palms facing each other), and the brachialis with a pronated (palms down) grip. This is because of the leverage of each muscle at various positions and ranges of motions.

The back of the upper arm is composed of the elbow extensors. Elbow extensors move the wrist away from the shoulder by straightening the arm to form a solid line from shoulder to wrist. The primary elbow extensors consist of the three individual heads of the triceps brachii—the long head, medial head, and lateral head (figure 2.2).

The arms are important in various athletic pursuits. The elbow extensors contract forcefully when you are swinging a bat or golf club, when stiff-arming or pushing an opponent forward in American football, when going for a spike in volleyball, or when throwing a ball overhead in baseball. These muscles are also heavily involved when throwing a chest pass in basketball or a jab or right cross in boxing or when heaving a shot put in track and field.

The elbow flexors transfer energy when you swing a racket in tennis or throw a hook in boxing. They're relied on when you're clinching or attempting or avoiding arm-bar submissions in mixed martial arts, when you're tackling an opponent in American football, and when you're pulling the body up in rock climbing. In addition, they're involved in the sport of rowing and in carrying heavy objects out in front of the body in strongman events.

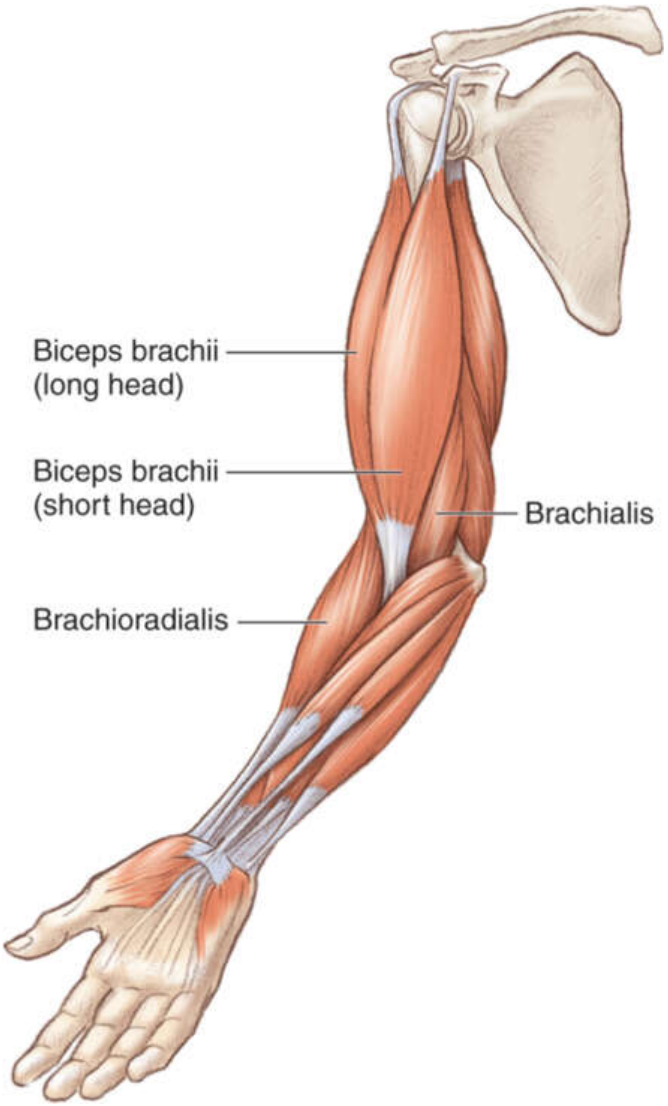


Figure 2.1 Biceps brachii, brachialis, and brachioradialis.

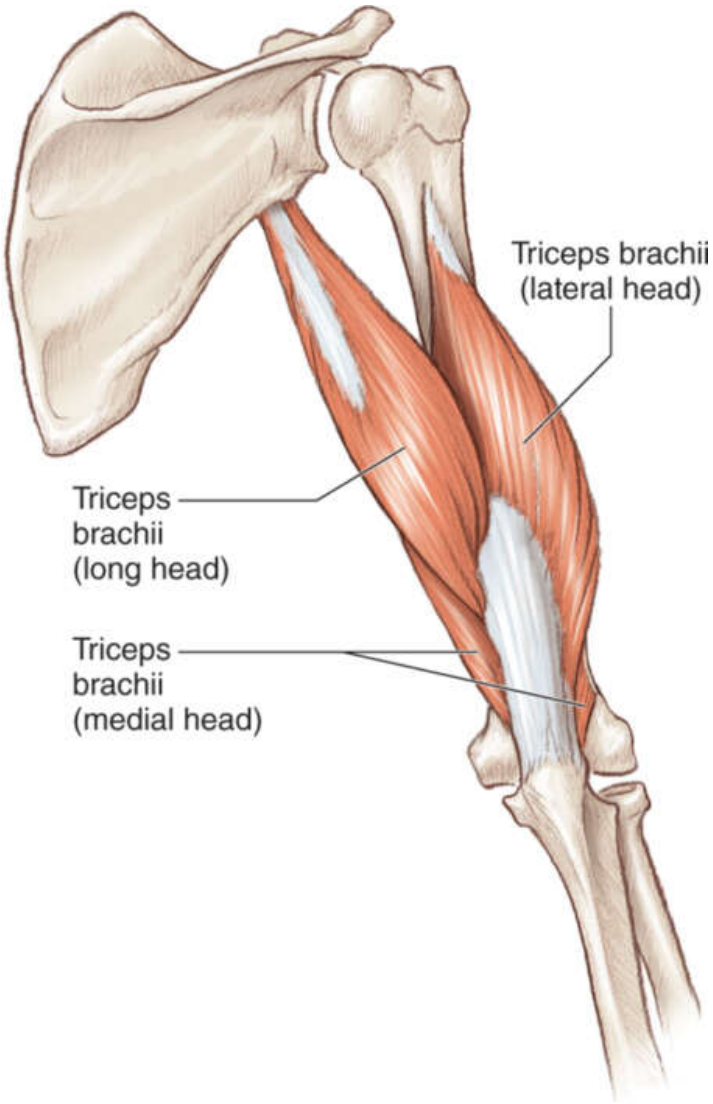


Figure 2.2 Triceps brachii.

Exercising the Arms

The arms are worked heavily during upper-body exercises that involve two or more joints moving at a time. All types of pull-up and rowing motions will sufficiently work the elbow flexors, and all types of push-up and dipping motions will sufficiently work the elbow extensors. For this reason, every time you train your chest, shoulders, and back, you'll be working your arms.

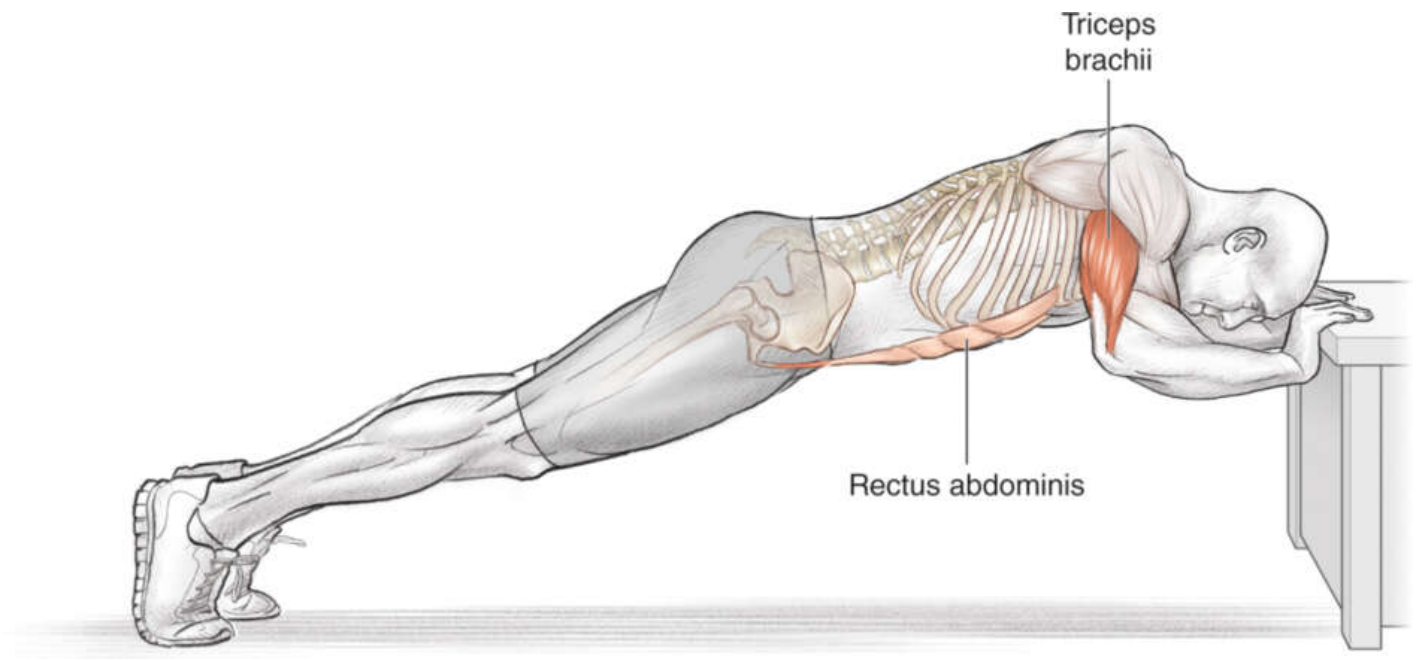
The involvement of the arm musculature during multijoint movements is important from a bodyweight training perspective. It's easy to isolate the arm muscles when using free weights or cables. Simply grab a weighted implement and flex or extend the elbows. Things become more complicated, however, when trying to use your body as a barbell. It's difficult to manipulate the body around the elbow joints. This isn't to say that it's not a good idea to try to target the arms with single-joint movements, but multijoint movements are the most productive in terms of total muscular output. I recommend performing single-joint elbow extension exercises to maximize the size of the long head of the triceps, as this head doesn't get worked that hard during compound (multijoint) pressing exercises. I notice extra growth every time I focus on single-joint movements for biceps, too.

When performing arm exercises, concentrate on squeezing the intended muscles and don't allow other muscles to do the job. Before heavy sets of elbow flexion exercises, Arnold Schwarzenegger used to envision his biceps growing as big as mountains. Focus on feeling the arm muscles contracting to create the desired movement. Bodybuilders call this a *mind–muscle connection*, and it takes time to sufficiently develop these neuromuscular pathways. Training for sport and functional purposes is more about training movements; training for physique and aesthetic purposes is more about training muscles. For this reason, think about arm training as

contracting your muscles against resistance. This will help you put maximal stress on the intended muscles.

Although the forearms are indeed part of the arms, they will be worked during gripping movements, including pull-ups and rowing motions, especially while training the back musculature. (See chapter 6.)

TABLE TRICEPS EXTENSION



SAFETY TIP: **Choose a stable, sturdy table or chair.**

EXECUTION

1. Place your hands on the edge of a table or seat of a chair.
2. Move back into proper position so that your body is in a straight line with straight legs and straight arms, your weight on your toes, and your abdominals and glutes braced.
3. Lower your body by bending your elbows.
4. Raise your body by using your triceps to extend your elbows.

MUSCLES INVOLVED

Primary: Triceps brachii

Secondary: Rectus abdominis

EXERCISE NOTES

The table triceps extension is one of the rare exercises that truly targets the triceps musculature. This is because the body revolves around the elbow joint with nearly pure elbow extension. Get into a strong position by planting the toes firmly into the ground and squeezing your abdominals and glutes to maintain a solid straight line from head to toe. Do not lose this position during the exercise. Sagging at the hips is not only unathletic but also potentially harmful to the low back. Don't allow your shoulder joints to move much and try to keep most of the movement around your elbows. Use the triceps musculature to raise and lower your body.

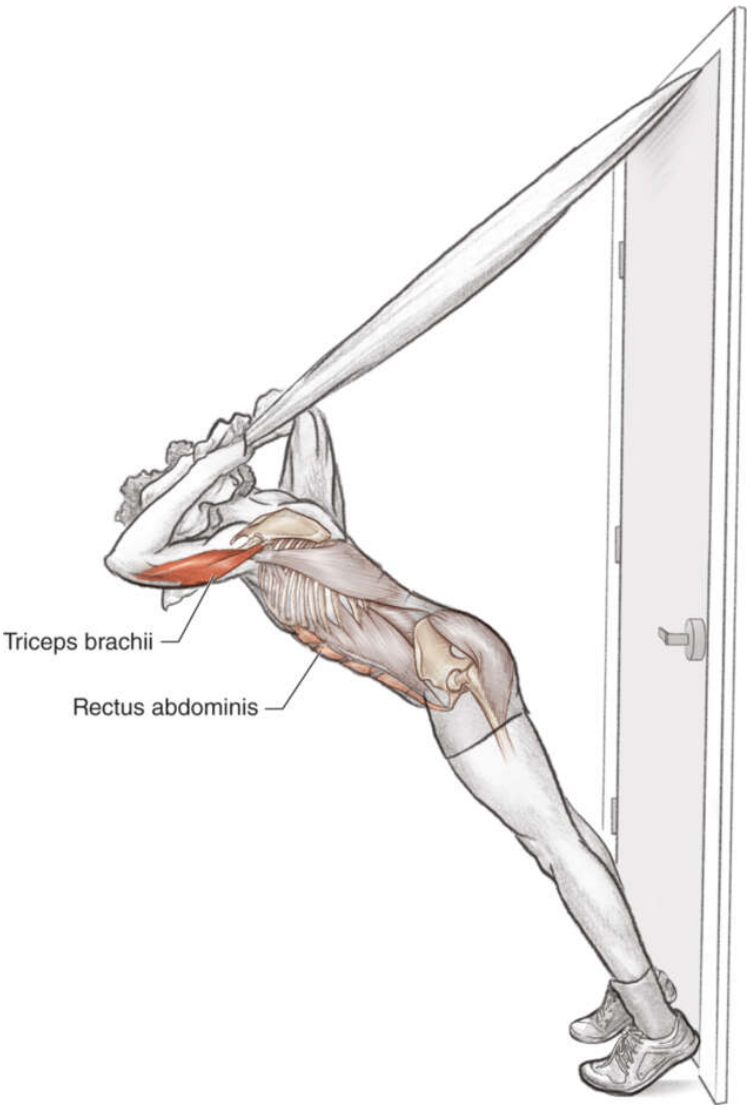
You can modulate the difficulty of this exercise by adjusting the chair or table height. To make the exercise easier, use a taller chair or table. To make the exercise more difficult, use a shorter chair or table.

VARIATION

Short-Lever Table Triceps Extension

People who find this movement challenging may shorten the lever by performing the movement from the knees, thereby reducing the total percentage of body weight being lifted. Use a sturdy chair or coffee table for this exercise; a standard table is too high.

SHEET TRICEPS EXTENSION



EXECUTION

1. Drape a towel over a chin-up bar or rafter or wedge it over a hook behind a sturdy door. Anchor your heels against the door and grab the towel with both hands. Face away from the attachment point.
2. Maintain a fixed elbow and shoulder position, then allow your torso to fall forward, bending at your elbow joints until your hands are directly over your shoulders.
3. Brace your core to prevent lumbar hyperextension.
4. Extend your elbow joints, allowing your torso to travel back and vertically.
5. Lower yourself back to the starting position.

MUSCLES INVOLVED

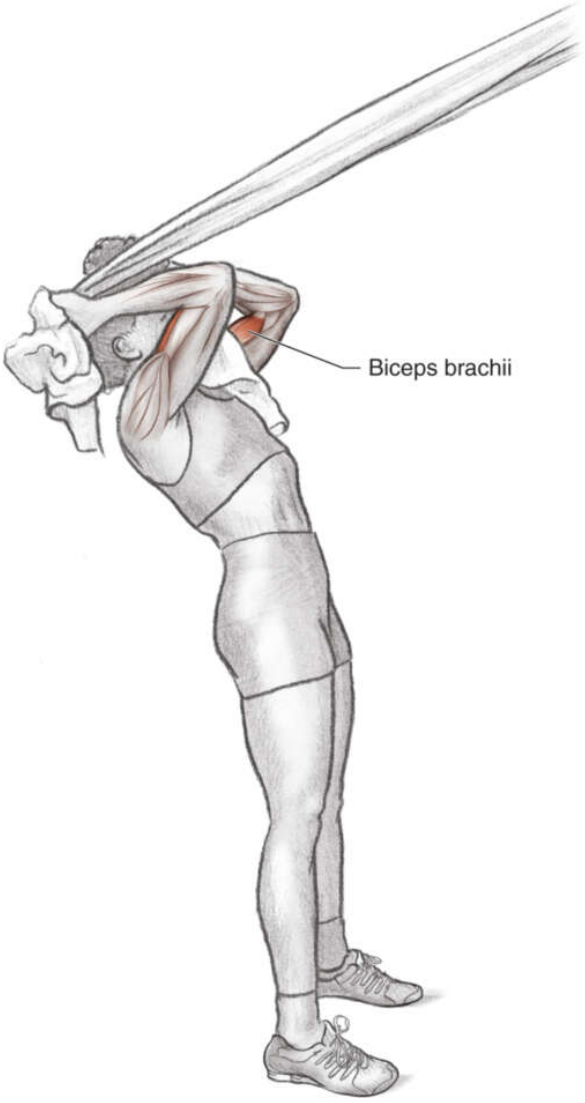
Primary: Triceps brachii

Secondary: Rectus abdominis

EXERCISE NOTES

The sheet triceps extension is a closed-chain form of a skull crusher. The setup is similar to the sheet pullover on page 104; however, for the sheet triceps extension, allow your elbows to bend as your torso descends toward the ground. Maintain a braced core throughout the movement to avoid lumbar hyperextension. Raise your torso by extending your triceps but avoid shifting your weight back. This is a very challenging exercise, so you may need to maintain a considerably vertical torso.

SHEET CURL



EXECUTION

1. Drape a sheet or towel over a chin-up bar or rafter or wedge it over a hook behind a sturdy door. Grab the ends of the sheet or towel in an underhand grip, your hands at shoulder height, wrapping the sheet or towel over your hands to secure it.
2. Brace your core to prevent lumbar hyperextension.
3. Flex your elbow joints, allowing your shoulder joints to flex only slightly, and extend your torso to an upright position.
4. Lower back to the starting position.

MUSCLES INVOLVED

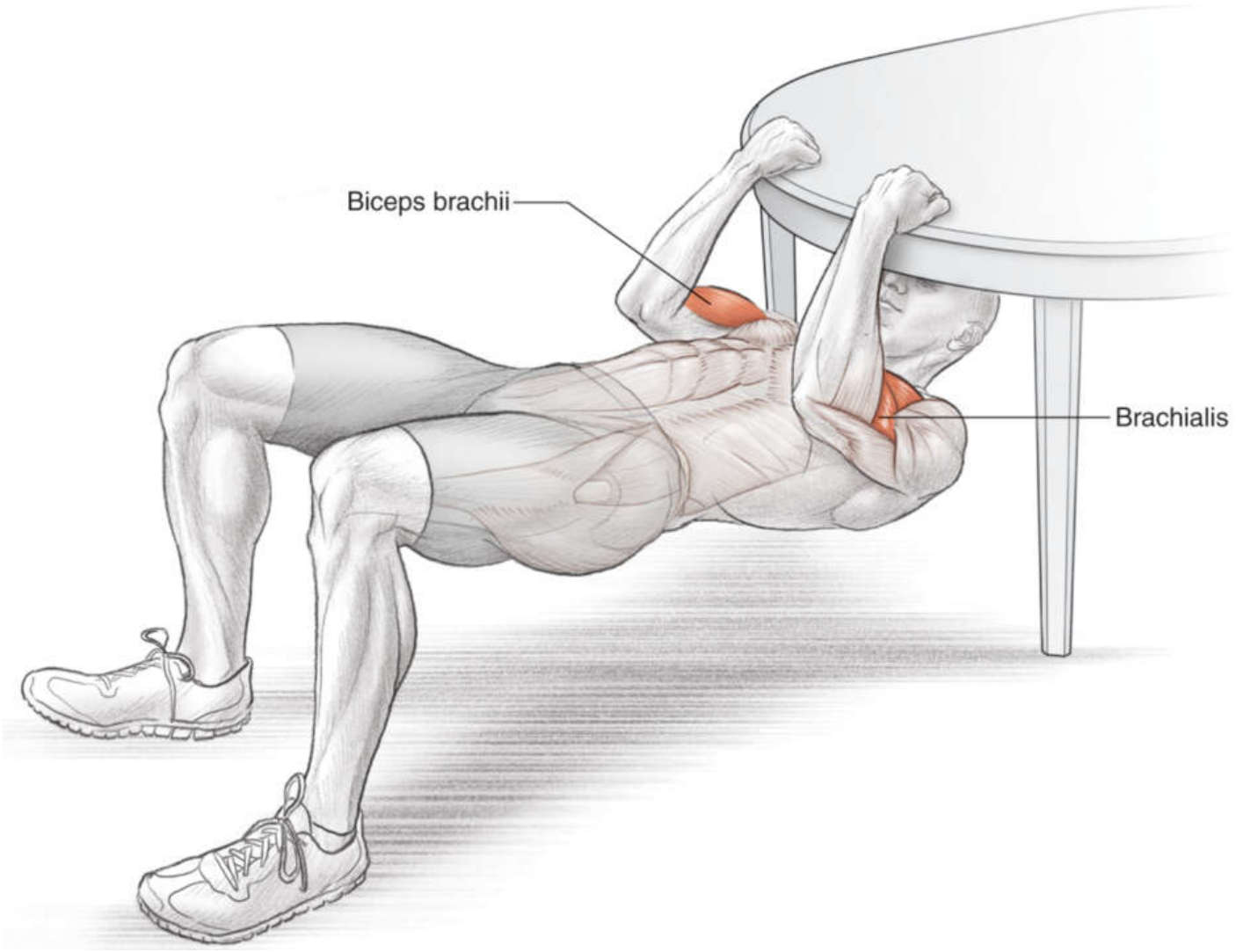
Primary: Biceps brachii

EXERCISE NOTES

The sheet curl is a closed-chain form of a biceps curl. The setup is similar to the sheet straight-arm

pulldown on page 106; however, you are facing the anchor point of the sheet or towel, and you are gripping the ends at shoulder height. Raise your torso primarily through elbow flexion. Although the biceps do flex the shoulder joint, excessive shoulder flexion will significantly shift tension onto the anterior deltoids. Since the biceps are a relatively small muscle group, starting with an upright torso helps scale the difficulty appropriately.

SHORT-LEVER INVERTED CURL



SAFETY TIP: **Choose a sturdy table or chair. Perform the exercise over a soft surface such as carpeting.**

EXECUTION

1. Lying on your back, set up under a sturdy table or tall chair with your hands grasping the outer edges, palms facing each other.
2. With your torso and legs in a straight line, your neck in neutral position, your knees bent at 90 degrees, your weight on your heels, and your abdominals and glutes braced, raise your body by bending the elbows. (When your neck is in a neutral position, your head and neck remain in their natural positions and are not tilted up or back.)
3. Lower to the starting position under control, moving mostly at the elbows and not the shoulders.

MUSCLES INVOLVED

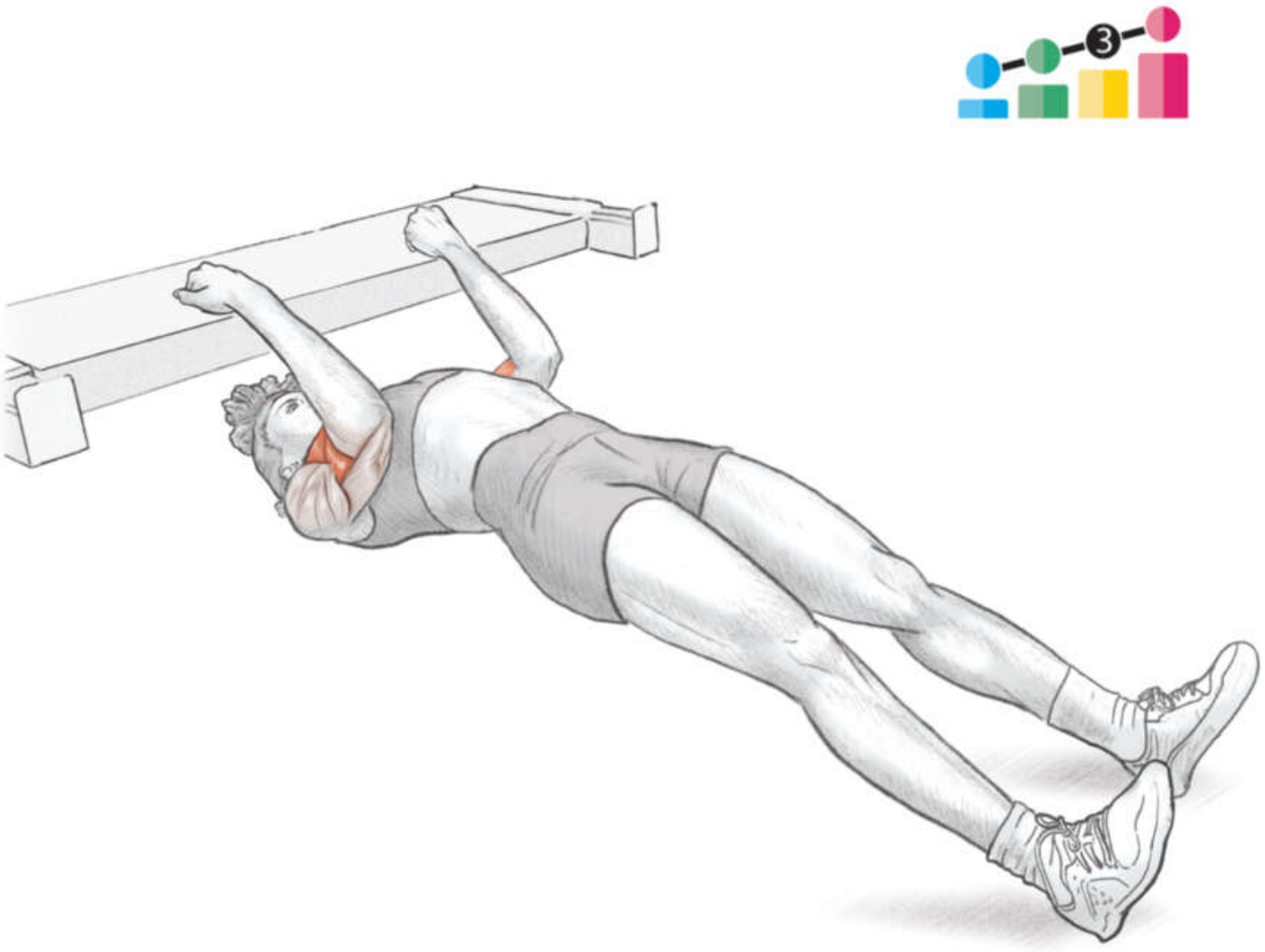
Primary: Biceps brachii, brachialis

EXERCISE NOTES

The short-lever inverted curl is one of the only pure biceps exercises. Most other biceps movements heavily involve the back muscles. Make sure you squeeze the core muscles—including the glutes—to keep your torso and legs in a straight line. This maintains core stability while moving the body around the elbow joint to target the biceps muscles.

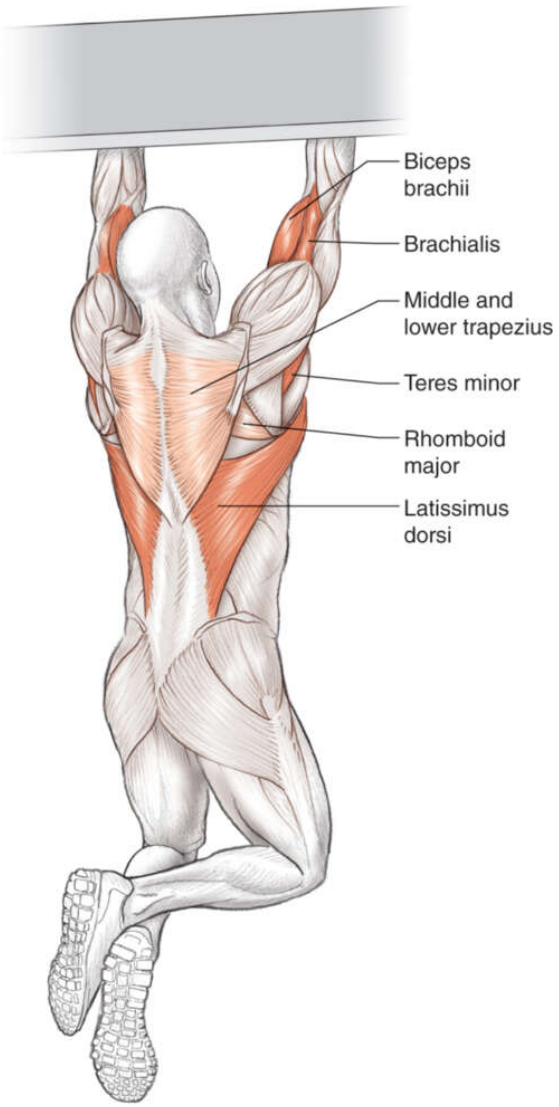
VARIATION

Long-Lever Inverted Curl



People who find the short-lever inverted curl easy may lengthen the lever by performing the movement with straight legs, thereby increasing the total percentage of body weight being lifted.

CHIN-UP



SAFETY TIP: Use a secure rafter or chin-up bar.

EXECUTION

1. Begin in a full-stretch position, hanging from a secure rafter or a chin-up bar with straight arms and a supinated grip, your palms facing you. Your toes will be off the ground and your knees can be bent if that's more comfortable.
2. Pull your body over the rafter or chin-up bar to sternum height while keeping your core stable.
3. Lower your body under control, making sure you come all the way down.

MUSCLES INVOLVED

Primary: Latissimus dorsi, brachialis, biceps brachii, teres minor

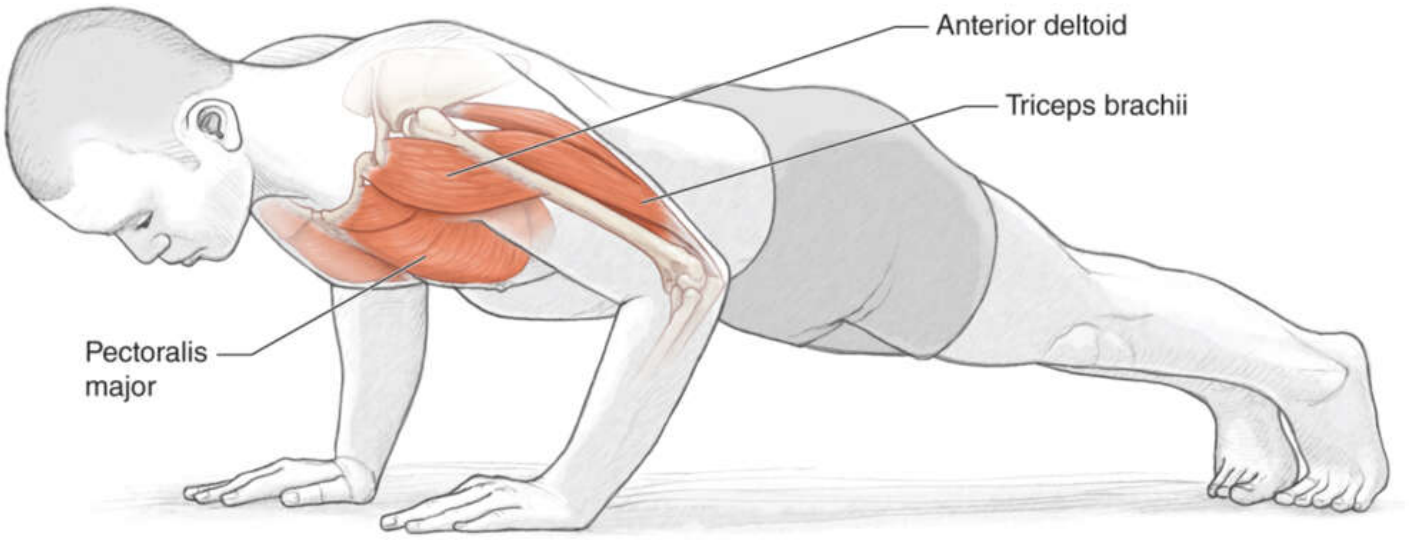
Secondary: Trapezius, rhomboids

EXERCISE NOTES

The chin-up is a classic bodyweight exercise for the biceps and back muscles. A supinated grip with your palms facing you works the biceps the best, which is why this variation is included in the arms chapter. This movement requires a rafter or bar you can hang from with a supinated grip.

Many people perform this movement incorrectly by failing to use a full range of motion at the top and bottom of the movement, kicking their legs and using momentum, overarching their low back, and shrugging their shoulders at the top of the movement. Keep your core stable and your body in a straight line from your shoulders to your knees with a strong core and glute contraction. When at the very top of the movement with your chin over the bar, imagine tucking your shoulder blades into your back pockets so you keep them back and down. Use a full range of motion by starting from a dead stop position and rising all the way to where the rafter touches the top of your chest. If you perform chin-ups this way, you'll receive a very effective core workout in addition to a challenging upper-body workout.

NARROW PUSH-UP



EXECUTION

1. Lie face down, your hands positioned shoulder-width apart and your elbows tucked next to your body.
2. With your feet together or no more than hip-width apart and your core stable, press your body up.
3. Lower your body until your chest approaches or touches the floor.

MUSCLES INVOLVED

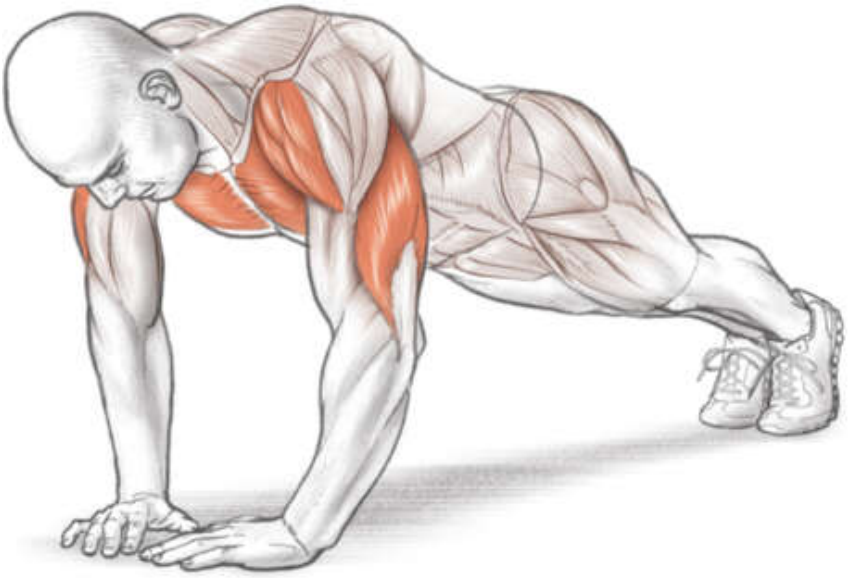
Primary: Anterior deltoid, pectoralis major, triceps brachii

EXERCISE NOTES

The narrow push-up is a classic exercise that targets the triceps and pectorals. It's extremely effective; however, most people perform this movement incorrectly by sagging at the hips, looking up and overextending your neck, stopping short and failing to use a full range of motion, or failing to center their elbows over their wrists. Keep a strong core by flexing the abdominals and glutes. Keep your body in a straight line throughout the exercise and do not allow the hips to sag. Lower your body until your chest hits the floor. Look down during the set and make sure your elbows are in line with your wrists. Keeping your body locked into a powerful position ensures that you receive a good core workout in addition to an effective upper-body workout.

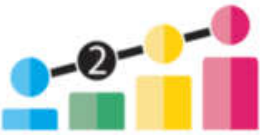
VARIATIONS

Diamond Push-Up



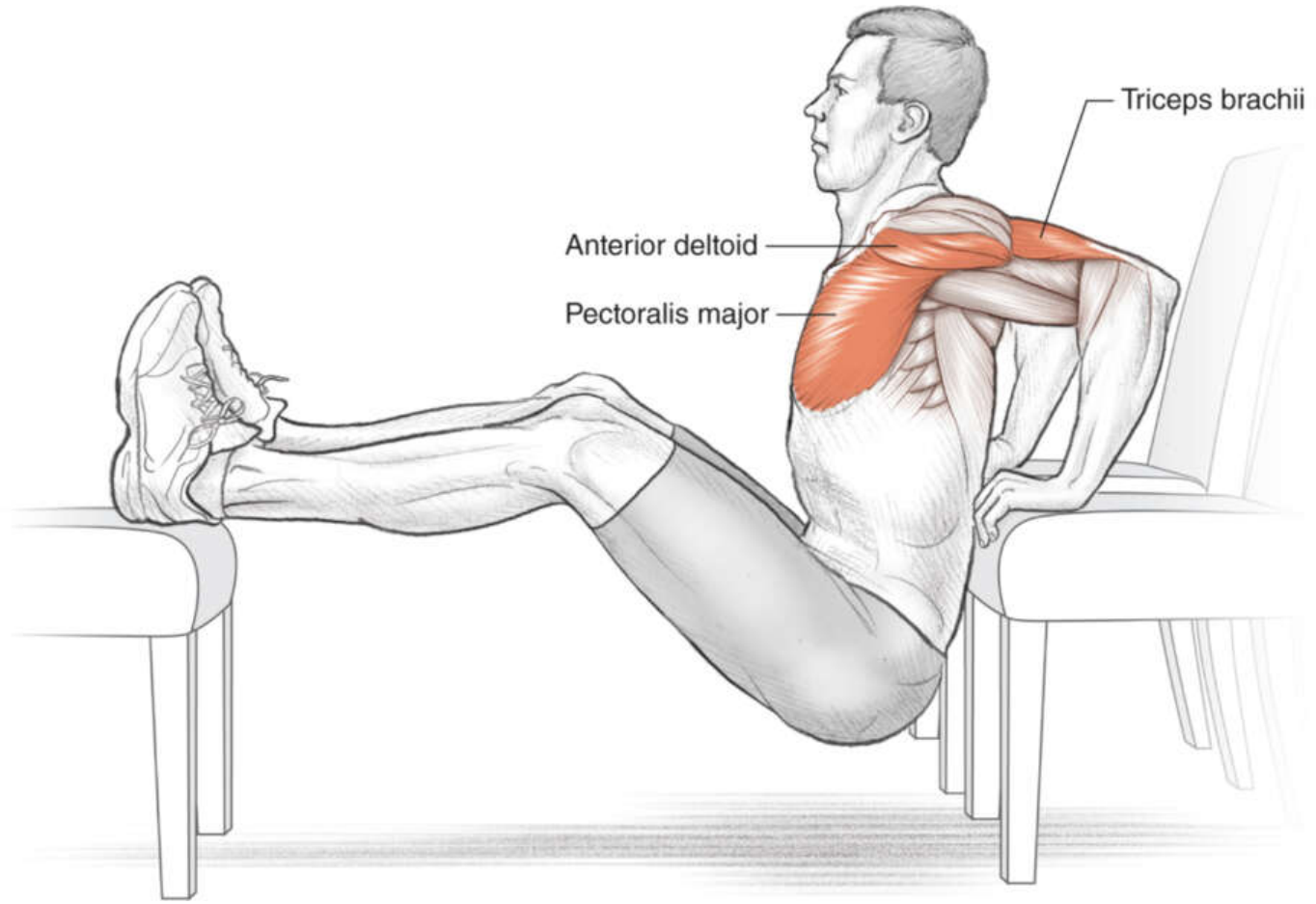
The diamond push-up is a bit more challenging than the narrow push-up because it relies more heavily on the triceps. This variation is performed with the hands touching each other and forming a diamond shape with the thumbs and index fingers.

Short-Lever Narrow Push-Up



People who struggle with regular narrow push-ups may shorten the lever by performing the movement from the knees. This reduces the total percentage of body weight being pressed up and allows a stricter form to be used.

BENCH DIP



SAFETY TIP: **Use sturdy, stable chairs or weight benches.**

EXECUTION

1. Set up three chairs so that your feet are resting on one and your body is centered between the other two. (If you have access to weight benches, you can perform this exercise using two weight benches. Set the benches parallel to each other. Place your palms on one bench and your heels on the other so your body is perpendicular to the benches.)
2. With your palms on the end of the two chairs, your fingers pointing down, your torso upright, and your legs together, lower your body under control until you receive an adequate stretch. Don't go too low; this could be dangerous. Keeping the upper arms parallel to the floor is deep enough.
3. Push your body up back to the starting position.

MUSCLES INVOLVED

Primary: Anterior deltoid, pectoralis major, triceps brachii

EXERCISE NOTES

The bench dip is commonly performed in gyms across the world. It’s an effective triceps builder and can be adjusted depending on your strength level. Make the exercise easier by performing the movement with your feet flat on the floor and your knees bent, which reduces the total amount of body weight being lifted. Descend deep enough to receive a good stretch in the muscles, but don’t go too deep and place your soft tissue at risk. If you regularly descend too deeply, you can injure structures surrounding the shoulder joint. This exercise can be dangerous if not performed properly. Keep a tall chest during this movement and don’t allow the lower back to round. Make sure you rise all the way to lockout.

CHAPTER 3

Shoulders and Neck

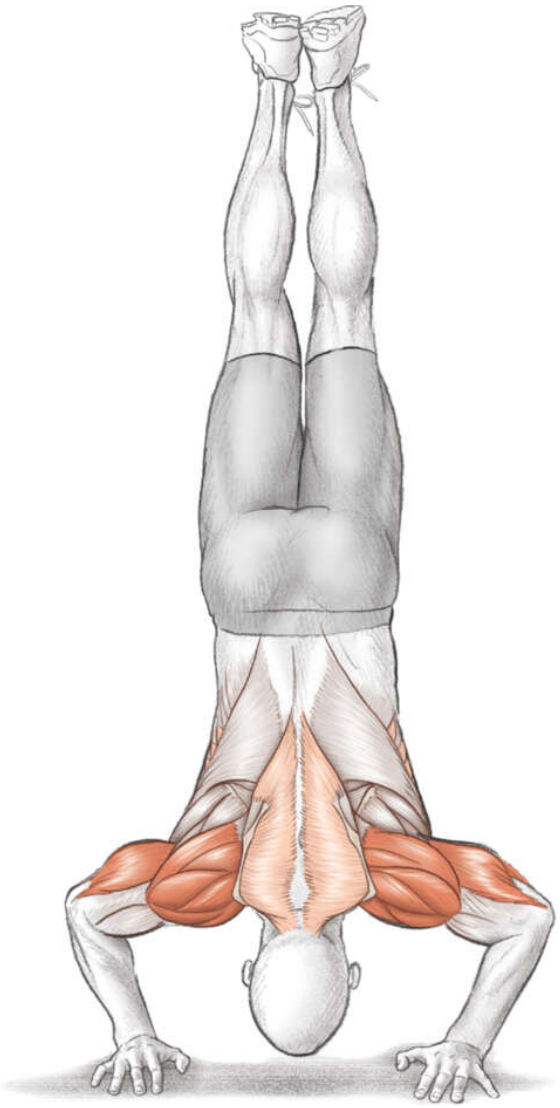
Envision someone strong and powerful. You may have imagined someone with muscular shoulders and a thick neck. Thick shoulders create the illusion of a smaller waist, producing the V taper coveted by bodybuilders. Although the latissimus dorsi (lats) are critical in creating this shape, the top of the V actually starts with the deltoids (delts). Achieving this coveted look requires defined upper-body musculature, a narrow midsection, and strong and muscular hips and thighs. The V taper, from the deltoids to the narrow midsection, characterizes someone fit and athletic.

Defined and toned delts signify a strong upper body, one built through hard work and effort. For many people, the shoulders can be stubbornly unresponsive to training, thereby requiring much devotion. To properly address the spectrum of shoulder and neck training, you need to understand the many functions of these muscles.

Neck

The neck is important in many sports. Collision sports such as American football, boxing, and rugby require strong necks to absorb strikes and prevent concussions or neck injuries. Grappling sports such as wrestling and Brazilian jiu-jitsu also require strong necks to prevent submissions and neck injuries.

The neck can move through all sorts of actions, such as flexion, extension, lateral flexion, rotation, protraction, and retraction. Strengthening the neck isometrically in all three planes will lead to a strong and stable neck, which is an overlooked aspect of spinal stability. If you seek improved neck strength and stability, I recommend that you at least perform isometric neck flexion and extension, with lateral flexion and rotation being optional. Because these motions strengthen the trapezius and sternocleidomastoid, the scalenes, and the levator scapulae, the muscles responsible for other neck motions such as rotation and lateral flexion, you will cover all bases by performing these two movements.



Many assume that the only way to work the upper trapezius (figure 3.1) is through shrugging exercises that require scapular elevation. This is incorrect. The upper traps are heavily involved in upward rotation of the scapula and therefore get hit hard during handstand push-up motions. The same goes for the lower traps. They also get worked during various rowing movements. In fact, you can adequately develop the fibers of the trapezius muscles by performing a balance of the horizontal and vertical pressing and pulling motions included in this book.

Overhead pressing is complex in terms of biomechanics. Proper overhead pressing motions require adequate strength and mobility of the shoulder, upper back, and upper arm. When people work at a desk and sit for much of the day slumped over computers, posture erodes, which compromises lifting mechanics. For this reason, beginners should stretch the upper body and progress gradually through these exercises to ensure that shoulder mobility and stability are developed in tandem. In particular, the upper spine should be able to extend and rotate properly and the shoulders should have adequate mobility in all directions. Balanced strength and flexibility across the upper-body joints will keep the shoulders healthy and functioning properly throughout a lifetime.

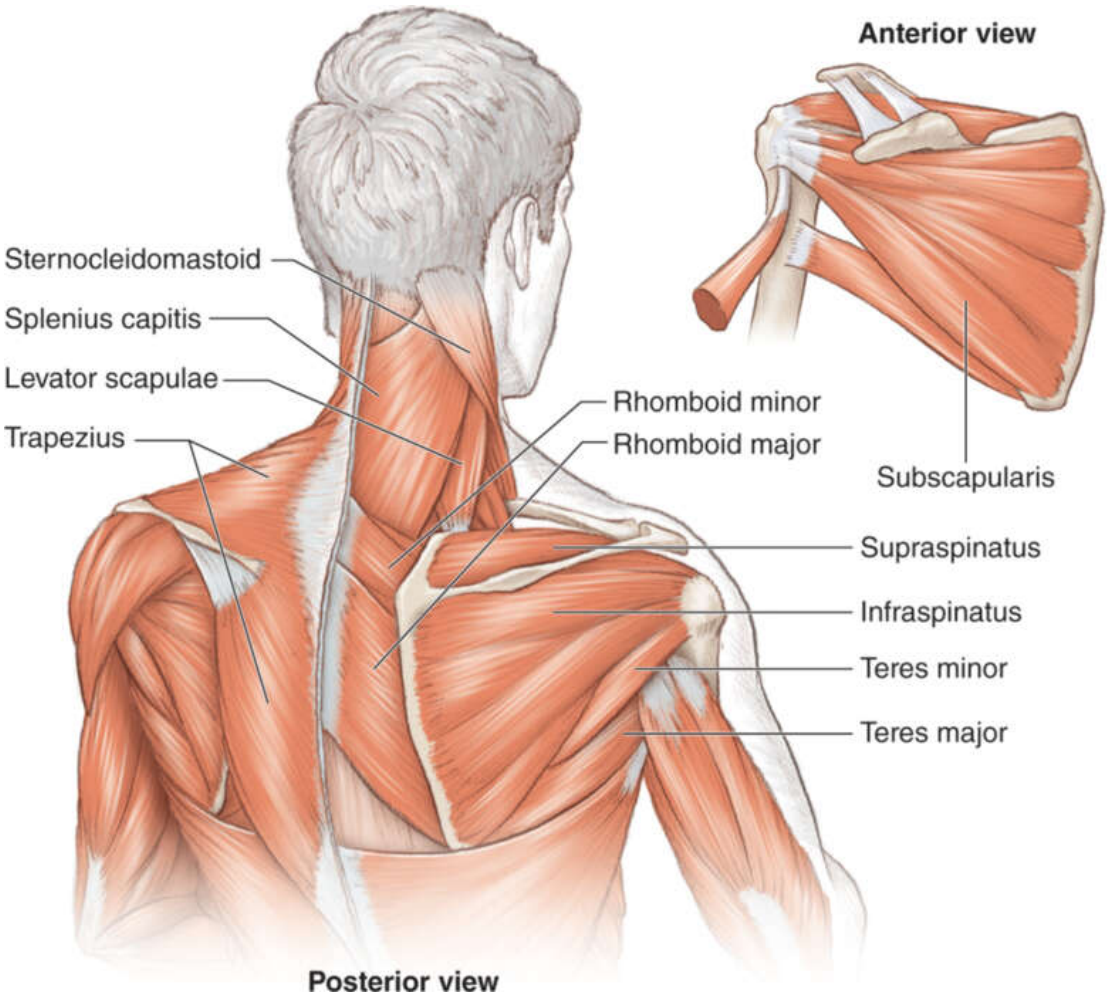


Figure 3.1 Neck and upper-back muscles.

Shoulders

The deltoids (figure 3.2) are important glenohumeral joint stabilizers and need to be strong and coordinated for rapid movement and to prevent shoulder dislocations (in concert with the rotator cuff muscles). The deltoids contain three heads, each having a different function. When you get lean enough, you'll be able to see the three heads contracting while you train.

A well-developed middle head, or lateral deltoid, is the subdivision of the delts that leads to the illusion of a wide V shape. The anterior head is on the front of the body, and the posterior head is on the back of the body. The anterior head is worked during push-up variations because it is a strong shoulder flexor and transverse, or horizontal, adductor. (Adduction moves a limb toward the midline of the body, and abduction moves a limb away from the midline of the body.) The posterior head is worked during various rowing and pull-up exercises because it acts as a shoulder extensor and transverse, or horizontal, abductor. However, this head is often underdeveloped. Specific attention to the rear delts is usually provided through single-joint transverse abduction or extension movements of the shoulder. While all three heads contribute to handstand push-up movements, the anterior and lateral heads are worked the most during this category of lifts. The posterior head keeps the shoulder stable and contributes slightly to the overall motion.

Even if you never targeted your deltoids, you could achieve good development by performing horizontal pressing and pulling movements such as push-ups and inverted rows. But to take your delt development to the next level, it is imperative to work them directly. On a personal note, my delts have grown over the past year after performing a greater volume of delt isolation exercises. There seemed to be fewer shoulder injuries many years ago when overhead pressing was more popular than horizontal pressing, because overhead pressing led to more stable shoulder muscles and balanced strength levels.

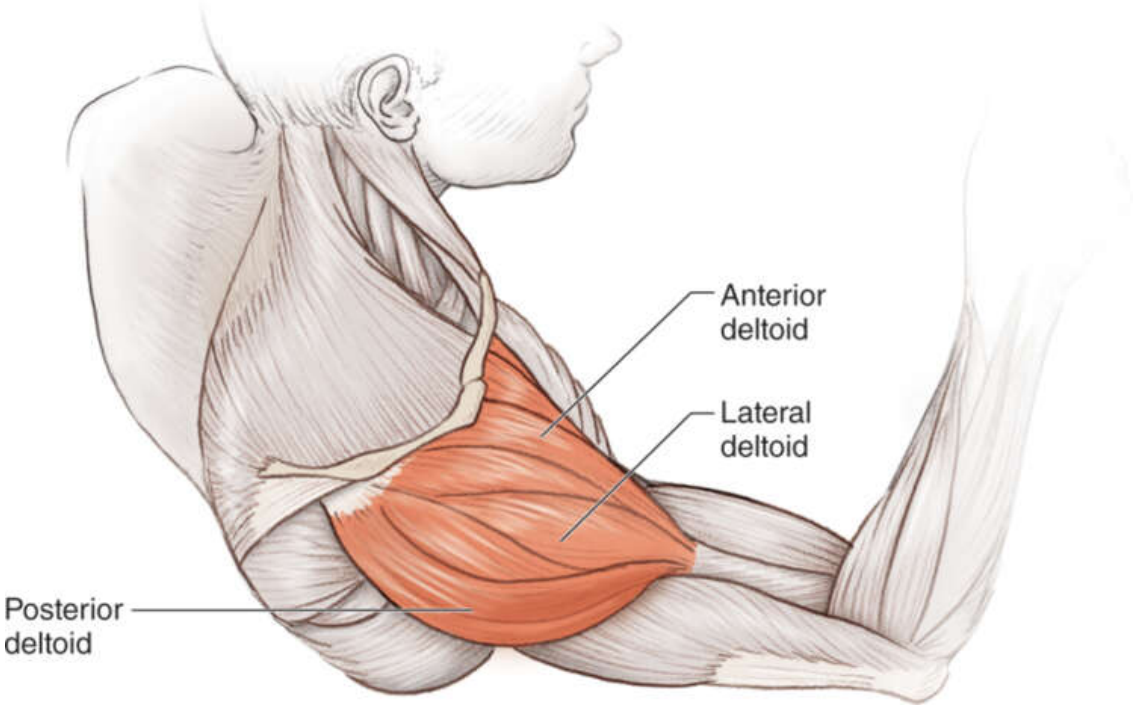
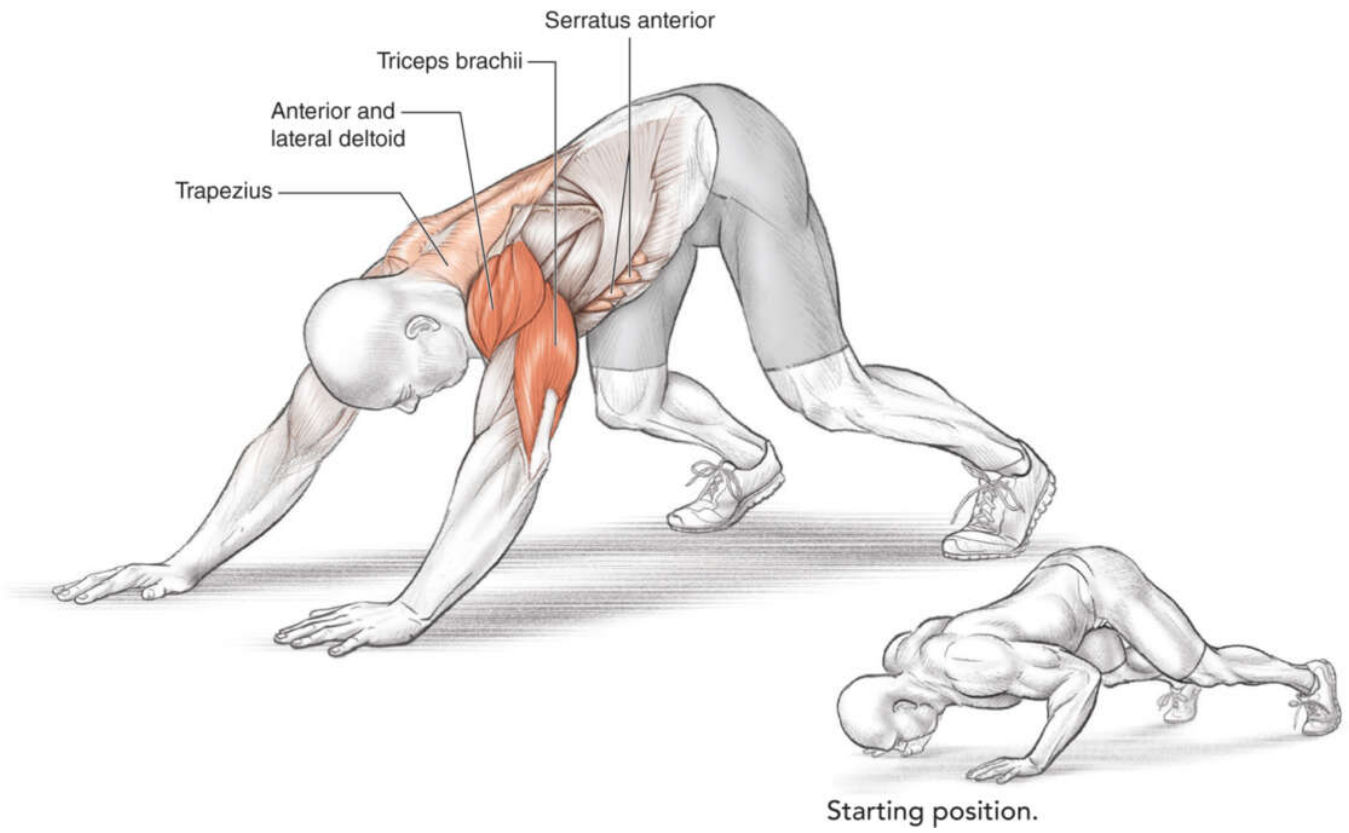


Figure 3.2 Deltoids.

It should come as no surprise that the deltoids are heavily involved in sporting movements. They're involved when you throw jabs and crosses in boxing, do chest passes in basketball, and push an opponent forward or stiff-arm an opponent in American football. In fact, the shoulders are heavily involved in all throwing, swinging, and striking motions predominant in sports such as softball, baseball, tennis, racquetball, swimming, volleyball, and martial arts. The posterior deltoid is highly involved in the backhand stroke in tennis, a spinning backfist strike in mixed martial arts, rowing, or even a Frisbee serve. When carrying heavy loads at the sides of the body, the deltoids contract forcefully to keep the loads away from the body and, along with the rotator cuff muscles, prevent the humerus, the upper-arm bone, from pulling out of its socket.

PUSH-BACK



EXECUTION

1. Stand with your feet wider than hip width. Bend over and set up as you would in the bottom of a push-up position, but keep your hips up.
2. Push up and back while crouching at the hips, keeping your hips higher than your shoulders.
3. Return to the starting position. The lifting part of the movement when the muscles are shortening should be an exact reverse of the lowering part of the movement when the muscles are lengthening.

MUSCLES INVOLVED

Primary: Anterior deltoid, lateral deltoid, upper pectoralis major, triceps brachii

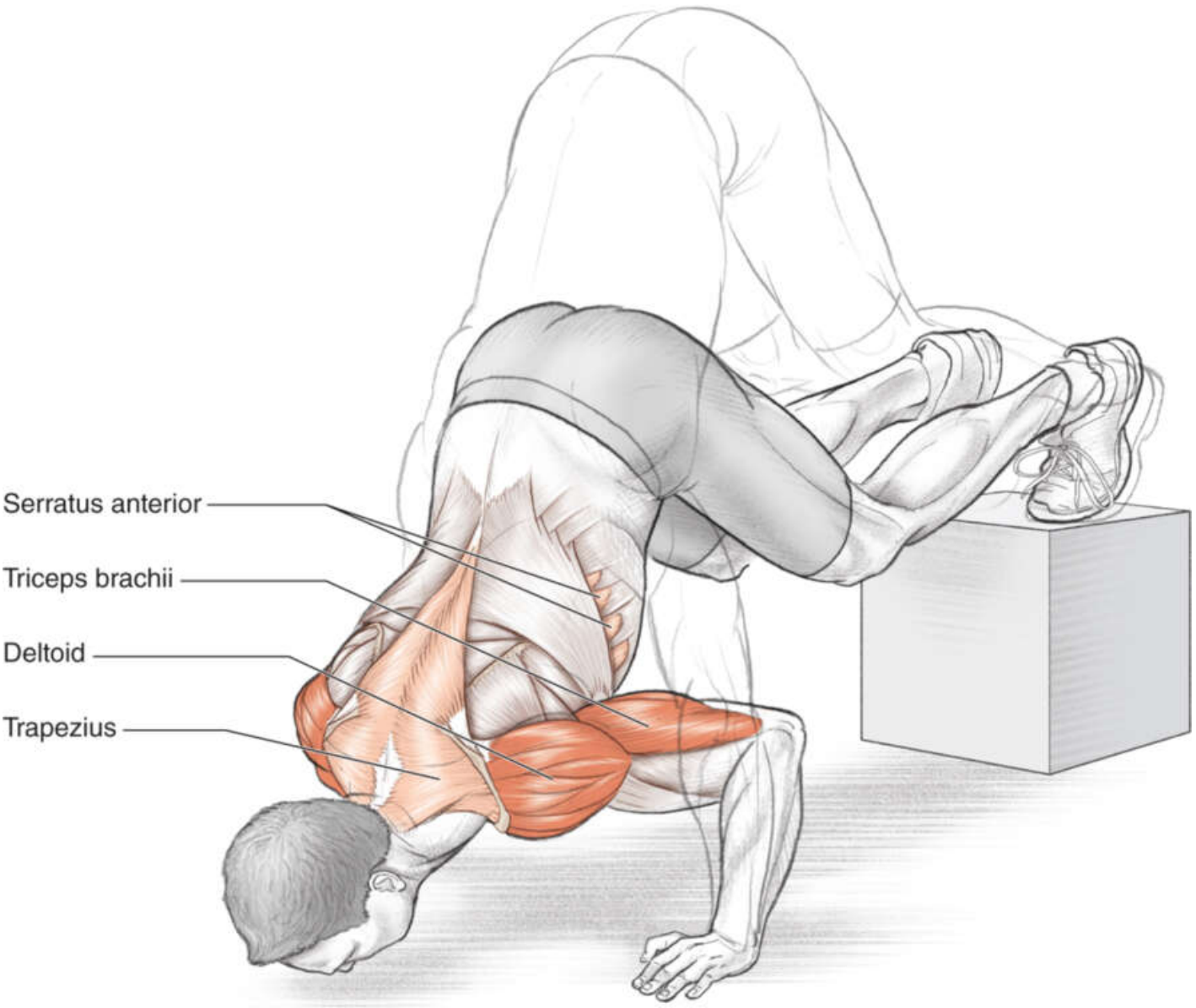
Secondary: Upper and lower trapezius, serratus anterior, middle and lower pectoralis major

EXERCISE NOTES

The push-back is a mix between a push-up and a pike push-up. The goal is to try to make a push-up feel like a handstand push-up by manipulating the direction of force into the ground. By pushing your body backward, you focus more on the shoulder musculature than the pec musculature.

Keep the hips high and feel the movement working the deltoids. Look down and avoid hyperextending your neck during the movement.

FEET-ELEVATED PIKE PUSH-UP



SAFETY TIP: **Use a very sturdy chair.**

EXECUTION

1. Place your hands on the floor just wider than shoulder width and your feet on top of a sturdy chair, box, or weight bench.
2. Pike up into an L-position by walking your hands back while flexing your hips and raising your buttocks toward the ceiling. Then lower your body toward the floor by bending your elbows.
3. When your head reaches the ground, reverse the motion to a starting pike position by pushing your body high and away from the floor.

MUSCLES INVOLVED

Primary: Deltoids, triceps brachii

Secondary: Upper and lower trapezius, serratus anterior

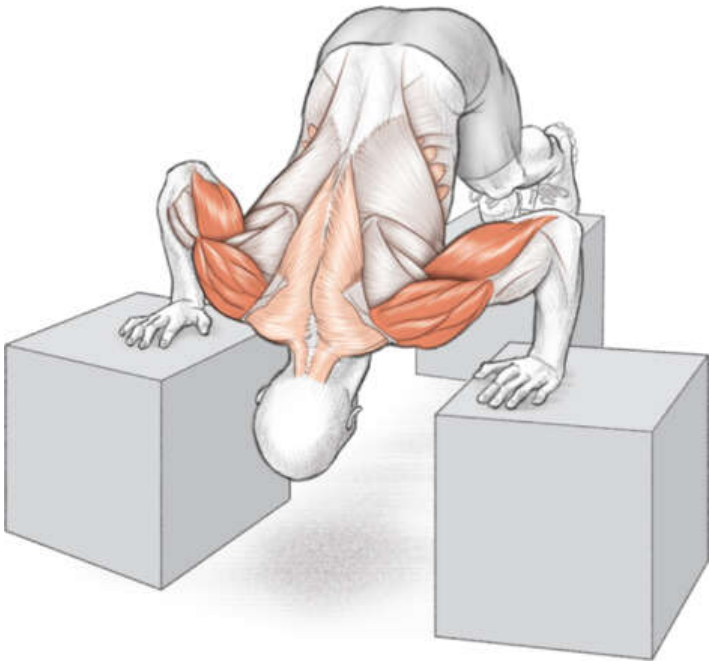
EXERCISE NOTES

The feet-elevated pike push-up is an effective shoulder builder. Many people are not quite strong enough to perform handstand push-ups, and the feet-elevated pike push-up is an excellent intermediate exercise in the progression to more challenging variations.

There is no need to hyperextend your neck to descend because the pike push-up is a partial-range movement no matter how you slice it. Keep your head and neck in neutral position and lower your body until the head touches the floor. Keep your body in an L-position throughout the movement.

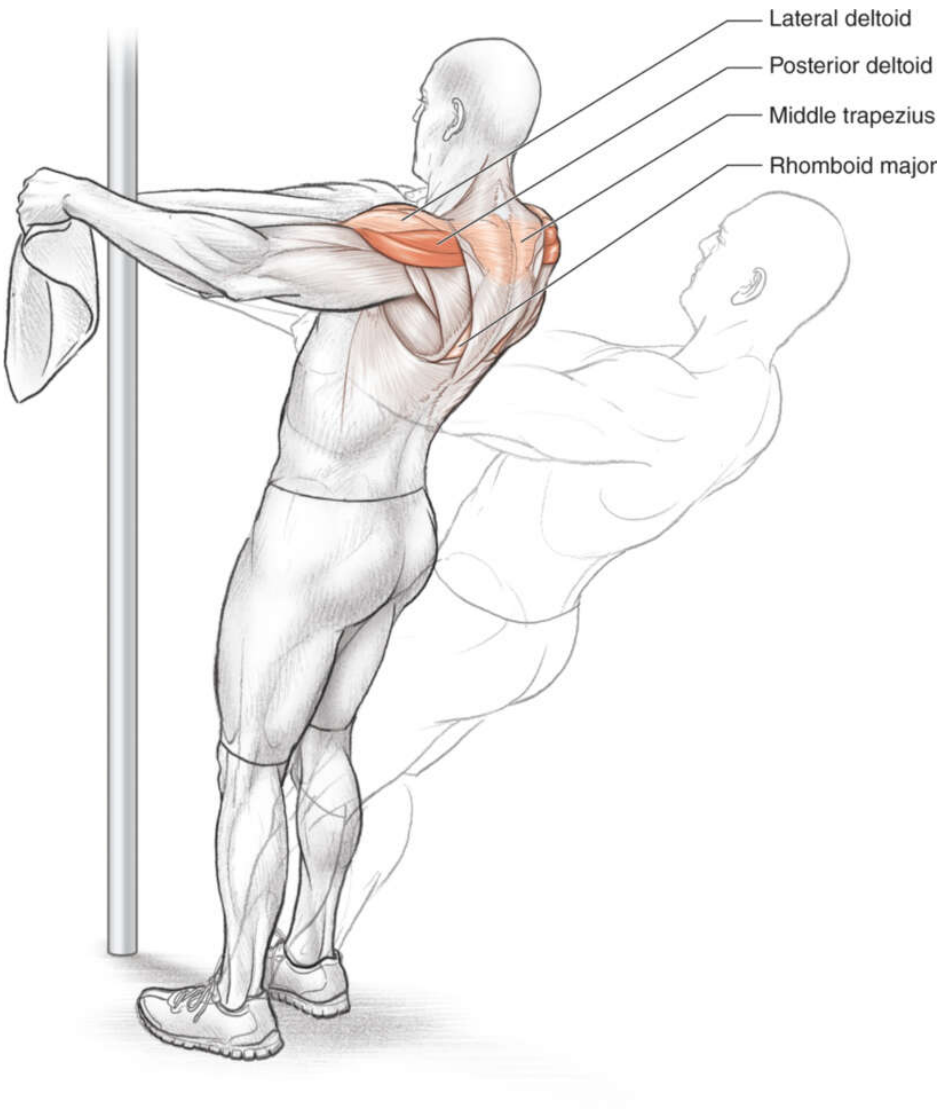
VARIATION

Deficit Pike Push-Up



Once you become proficient in the feet-elevated pike push-up, increase the range of motion by performing the exercise between two sturdy, immobile chairs or boxes. This allows your head to travel farther down, placing more stress on your shoulder muscles and creating a more effective movement. The rear chair should be taller than the two front chairs.

SHEET REAR DELT RAISE



EXECUTION

1. From a standing position with a sheet or towel wrapped around a pole, grab the ends of the sheet or towel and lean back into position.
2. Keeping your body in a straight line, raise your body by bringing your arms out to the sides.
3. Control the descent back to the starting position.

MUSCLES INVOLVED

Primary: Posterior deltoid

Secondary: Lateral deltoid, middle trapezius, rhomboid major

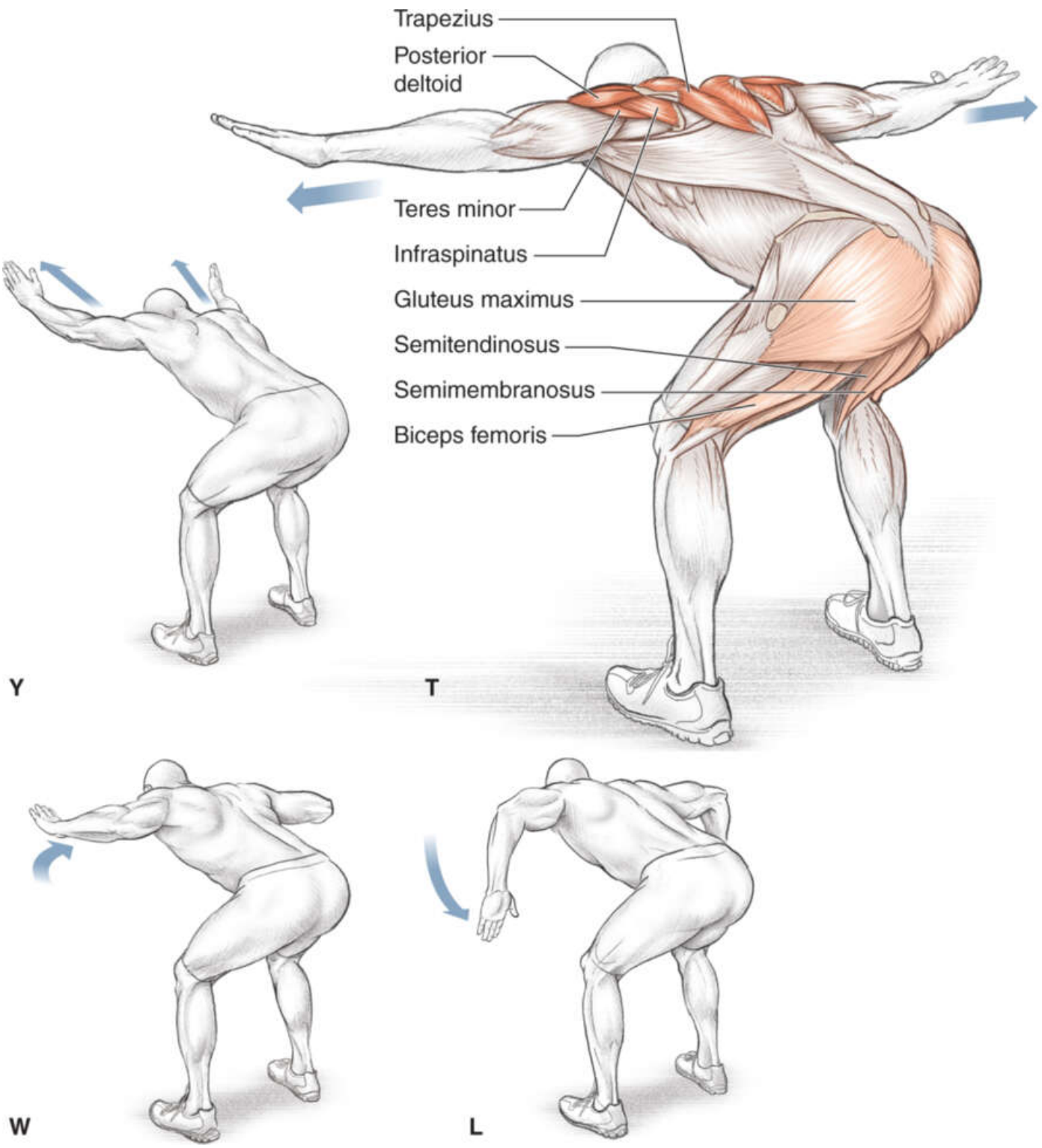
EXERCISE NOTES

This move is easiest when you have a large sheet or towel and access to a pole. However, you have other options. You may also drape the end of a large sheet or towel over the top of a sturdy

door and then shut the door, thereby wedging the sheet or towel into place. If the sheet or towel is wide enough, one will suffice, but two sheets or towels can be used as well. Keep your body in a straight line and focus on pulling your body up with the posterior deltoids and scapular retractors (middle trapezius and rhomboids). Adjust the level of difficulty by varying your body position. Stay more upright to make the exercise easier and walk forward to create a greater trunk lean and more challenge.

Although this exercise has a short range of motion, it is important for balancing the shoulder musculature. Try your best to maintain tension on the posterior delts because these are often neglected and underdeveloped.

YTWL



Y position, T position, W position, and L position.

EXECUTION

1. From a standing position, bend your hips past a 45-degree torso angle, maintaining a neutral spine while sitting back and stretching your hamstrings. Allow your arms to hand

down to the ground.

2. Perform 10 dynamic Y motions by forming a Y with your arms, returning to the starting position after each repetition. Switch to 10 T motions with your arms, followed by 10 W motions.
3. Transition into 10 L motions by holding your arms straight out with your elbows bent at 90 degrees and rotating at the shoulder joint so that your forearms move from vertical to the ground to parallel to the ground.

MUSCLES INVOLVED

Primary: Lower trapezius, middle trapezius, rotator cuff musculature (infraspinatus, teres minor), posterior deltoid

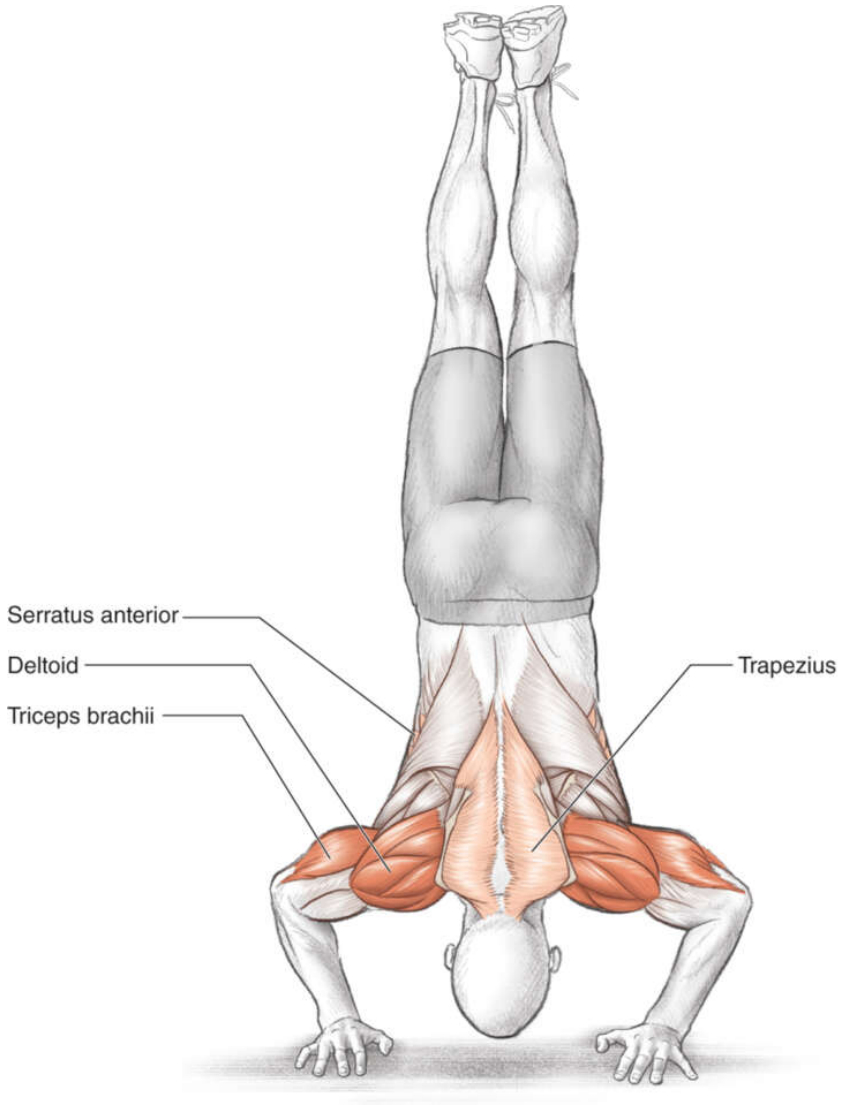
Secondary: Hamstrings (biceps femoris, semitendinosus, semimembranosus), gluteus maximus

EXERCISE NOTES

The YTWL is a terrific movement because it strengthens many of the crucial smaller muscles of the shoulder joint that provide stability and support for multijoint movements. These muscles are not called on much during everyday activity, so by activating them during the YTWL exercise, you'll prevent future injury or dysfunction. It is important to keep these muscles healthy.

You'll be surprised how challenging bodyweight resistance is throughout the set. Maintain good posture and don't allow the back to round.

WALL HANDSTAND PUSH-UP



EXECUTION

1. Starting on your hands and knees, place your feet against the wall and walk your way up into a handstand position so that your toes end up against the wall, your body is relatively vertical and in a straight line, and you are facing the wall.
2. Lower your body slowly by bending your elbows until your head reaches the ground.
3. Reverse the movement and raise your body back to the starting position. When the set finishes, walk your way down the wall, back to your hands and knees.

MUSCLES INVOLVED

Primary: Deltoids, triceps brachii

Secondary: Upper and lower trapezius, serratus anterior

EXERCISE NOTES

The wall handstand push-up is the most challenging overhead pressing movement because it

requires you to lift your entire body weight. This exercise is much more challenging than a typical push-up for two reasons. First, people are stronger in horizontal pressing motions in comparison to vertical pressing motions. Second, the handstand push-up involves hoisting all your body weight, whereas push-ups involve only about 70 percent because of the four points of contact with the floor and the angle of the torso.

There are several ways to perform this movement—feet against a wall behind the body, feet against a wall in front of the body, a partner holding the legs, or freestanding. Obviously, the freestanding version is the most difficult because of the balance requirements.

MANUAL NECK ISOHOLD

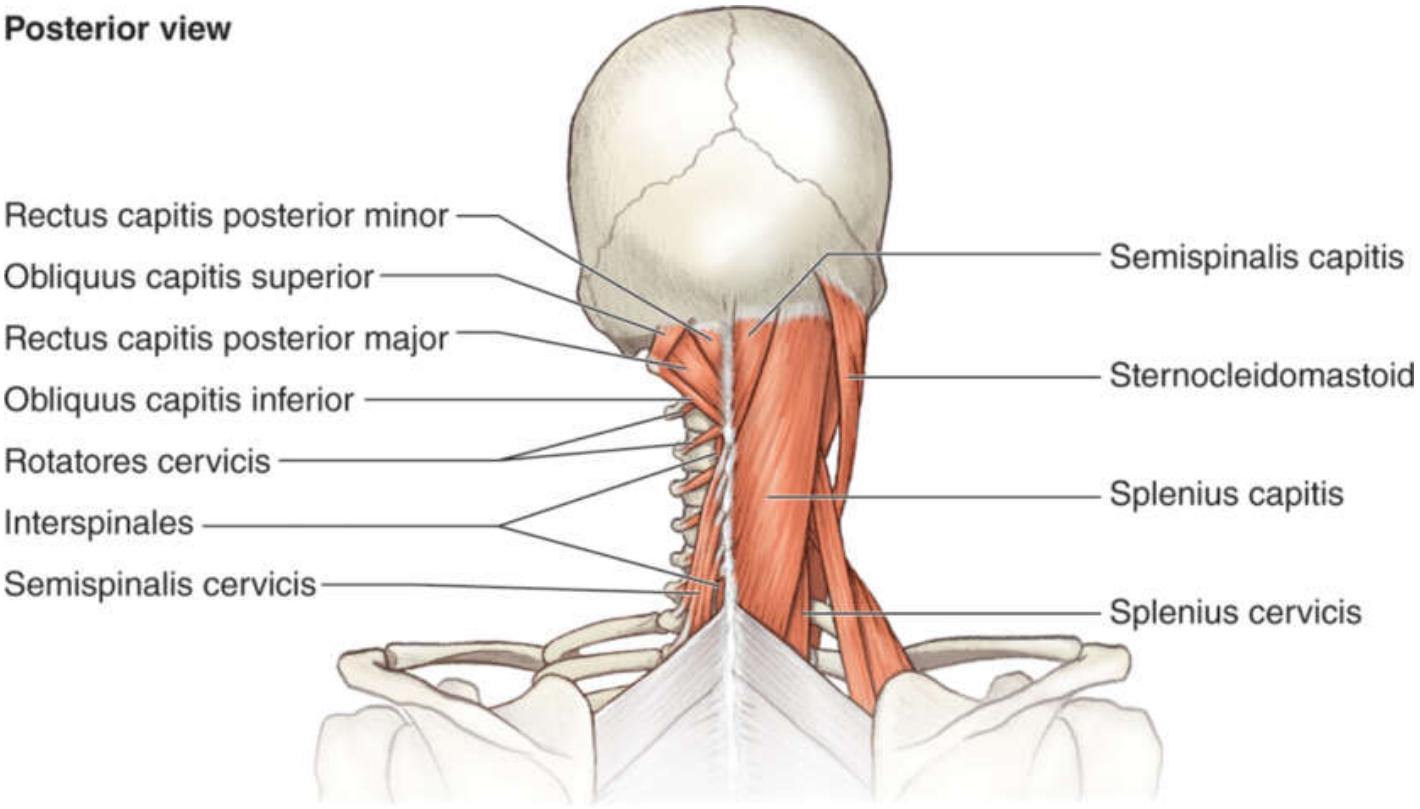
Front. Side.

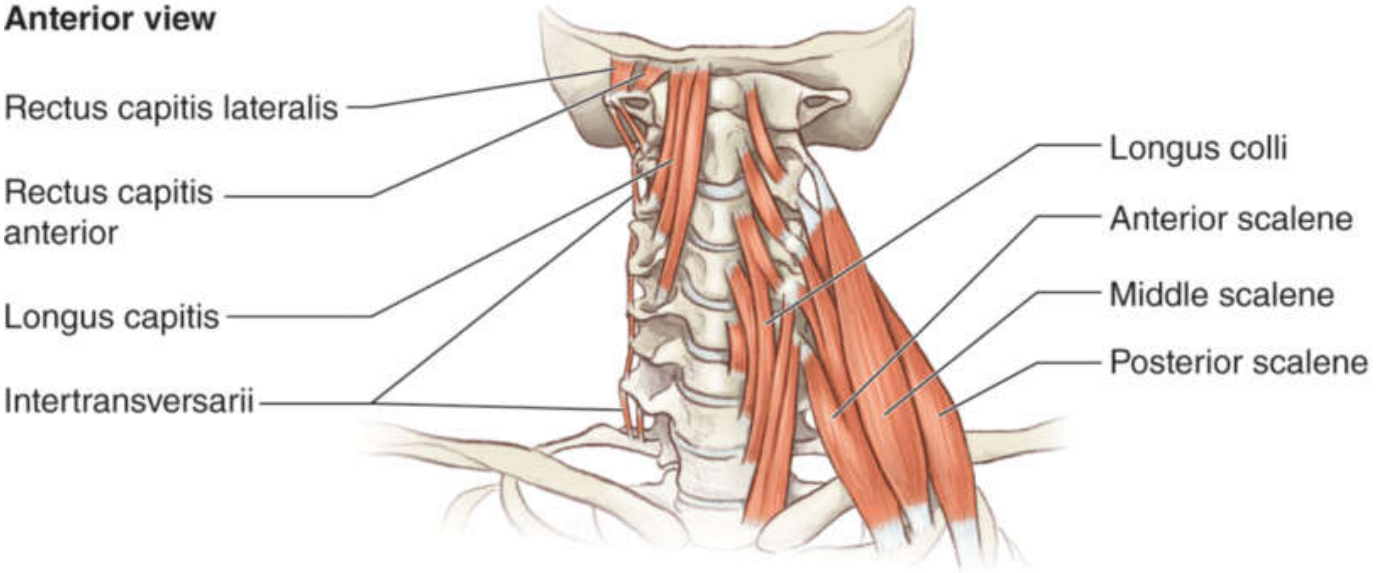
EXECUTION: FRONT AND SIDE

1. From a seated position with your elbows braced on your thighs, place your hands on the front of your head and apply manual (self-produced) isometric resistance.
2. Resist the force created by your hands by actively pushing your head into your hands. Hold this position for 10 seconds.
3. Finish with a lateral isohold on each side (right and left) by placing your hand on the side of your head, applying manual resistance, and holding the isometric contraction for 10 seconds.

MUSCLES INVOLVED: ALL POSITIONS

Primary: Interspinales, intertransversarii, longus capitis, longus colli, obliquus capitis inferior, obliquus capitis superior, rectus capitis anterior, rectus capitis lateralis, rectus capitis posterior major, rectus capitis posterior minor, rotatores cervicis, scalenes, semispinalis capitis, semispinalis cervicis, splenius capitis, splenius cervicis, sternocleidomastoid



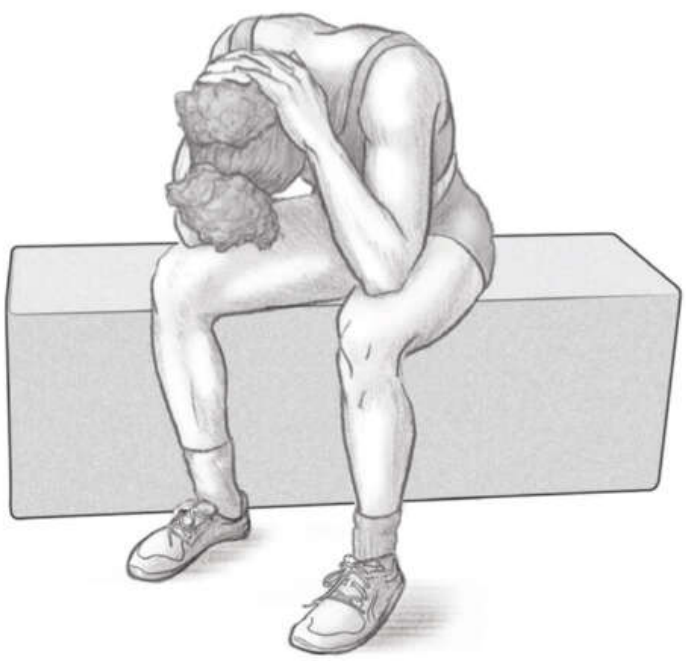


EXERCISE NOTES: FRONT AND SIDE

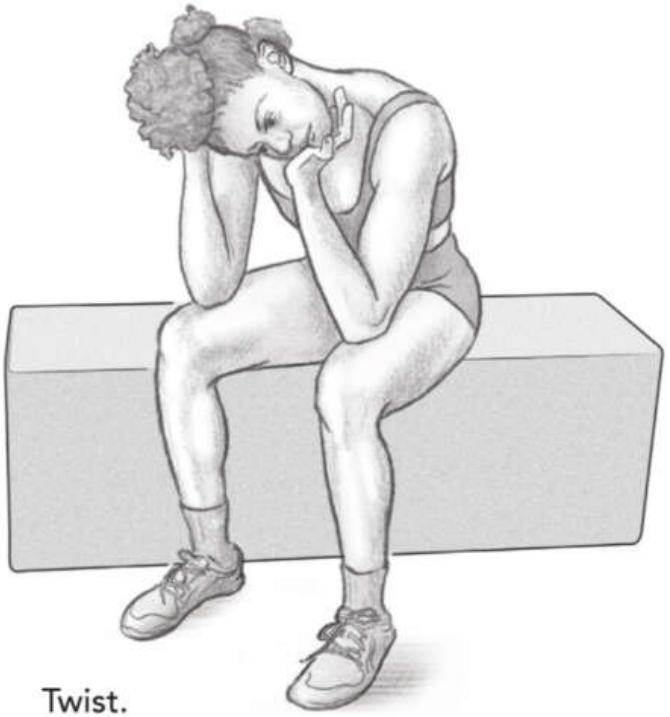
Manual neck exercises are excellent for strengthening the neck musculature. Studies show that to strengthen the neck, you have to train it directly. The neck muscles will not reach their maximum potential unless you perform specific neck exercises, and the good news is that it's very easy to train your neck through isometric holds.

Keep your neck in a relatively neutral position while you perform the front and side holds. In a neutral position, your neck is in its normal position, not twisted or tilted forward, backward, or to the side. Perform three holds: one for flexion, one for right lateral flexion, and one for left lateral flexion.

A strong neck is important because it more securely connects the head to the torso, which reduces the risk of concussions.



Back.



Twist.

EXECUTION: BACK

1. From a seated position with your elbows braced on your thighs, interlace your fingers and place your hands toward the upper three-quarters of the back of your head.
2. Using your hands, pull your head forward and down.
3. Resist the force created by your hands by actively pushing your head back and up. Hold this position for 10 seconds.

EXERCISE NOTES: BACK

The back neck hold trains your neck via isometric cervical extension, which will hit the upper traps and levator scapulae. This exercise can be performed nearly anywhere, because it requires only your arms to provide manual resistance. Allow your head to travel into a moderate degree of cervical flexion; the more cervical flexion you start in, the harder it will be. Interlace your fingers to increase grip stability and place your hands toward the top three-quarters of your head height; the higher on your head you go, the harder it will be with the same amount of manual force applied. Pull your head into further flexion with your arms and actively resist it by pushing your head into your hands equal to the amount you're pulling forward. Your head position shouldn't move.

EXECUTION: TWIST

1. From a seated position with your elbows braced on your thighs, rotate your cervical spine. Place one hand on the back of your head and the base of the other arm on the near side of your chin. Lightly bite down to stabilize your jaw and keep it from rotating.
2. Using your hands, apply pressure to further rotate your cervical spine.
3. Resist the manual pressure of your hands to keep your head from moving. Hold this position for 10 seconds.
4. Switch the positions of your hands and repeat the movement with your head twisted in the other direction.

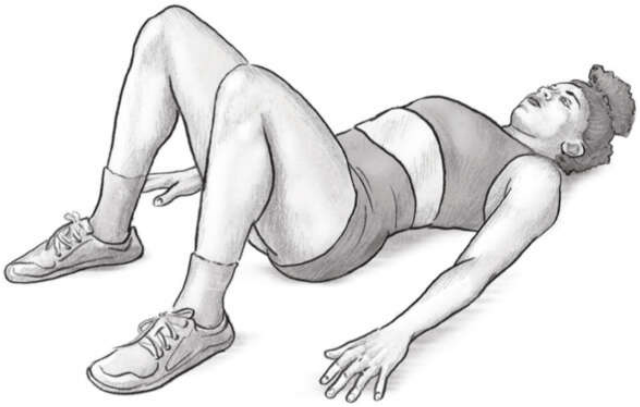
EXERCISE NOTES: TWIST

Cervical rotation targets the sternocleidomastoid; the hold increases the stability of the head and jaw. Start with minimal rotation because the more rotation you're in, the weaker you'll be. Maintain a light bite to prevent lateral excursion of the mandible (jaw). Push your cervical spine laterally with

your hand on your jaw and resist the manual tension created.

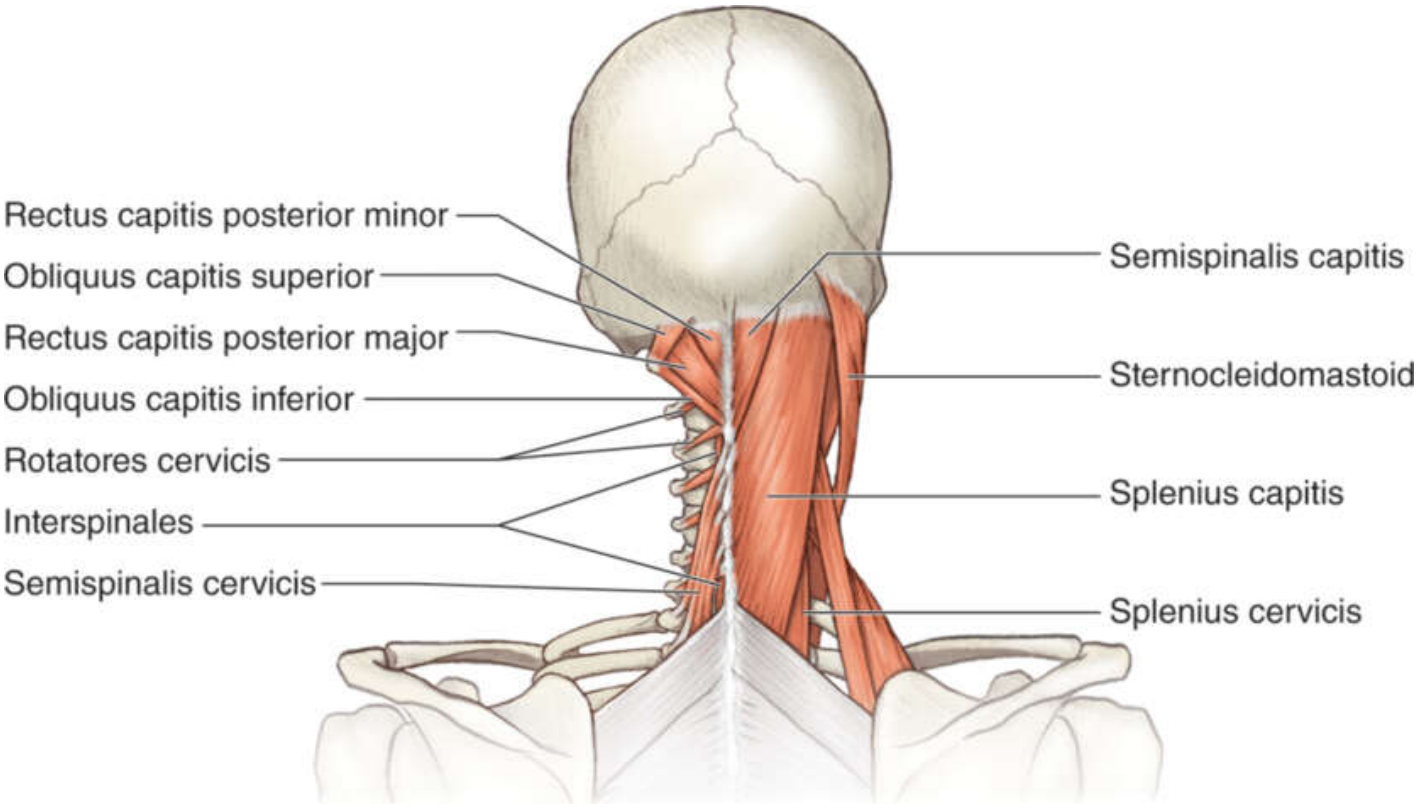
This range of motion is important for athletes in combat sports that include blows to the head since the head rapidly rotates quicker than the brain. Strong antirotation strength can reduce concussions.

NECK BRIDGE



Starting position.

Bridge.



EXECUTION

1. Lie supine on the ground. Bridge your hips up and slightly toward your face.
2. As your weight starts to shift toward your face, extend your cervical spine and roll on your head.

MUSCLES INVOLVED

Primary: Sternocleidomastoid, splenius capitis, splenius cervicis, rectus capitis posterior major, rectus capitis posterior minor, obliquus capitis superior, obliquus capitis inferior, semispinalis capitis, semispinalis cervicis, rotatores cervicis, interspinales

EXERCISE NOTES

The neck bridge is an advanced exercise that uses body weight to load your neck through a dynamic range of motion. As you bridge back, extend your cervical spine, and roll onto your head, you will apply downward pressure into the ground. Ensure you are moving your head as your weight shifts over your neck because maintaining a neutral spine can place excessive force on your neck.

CHAPTER 4

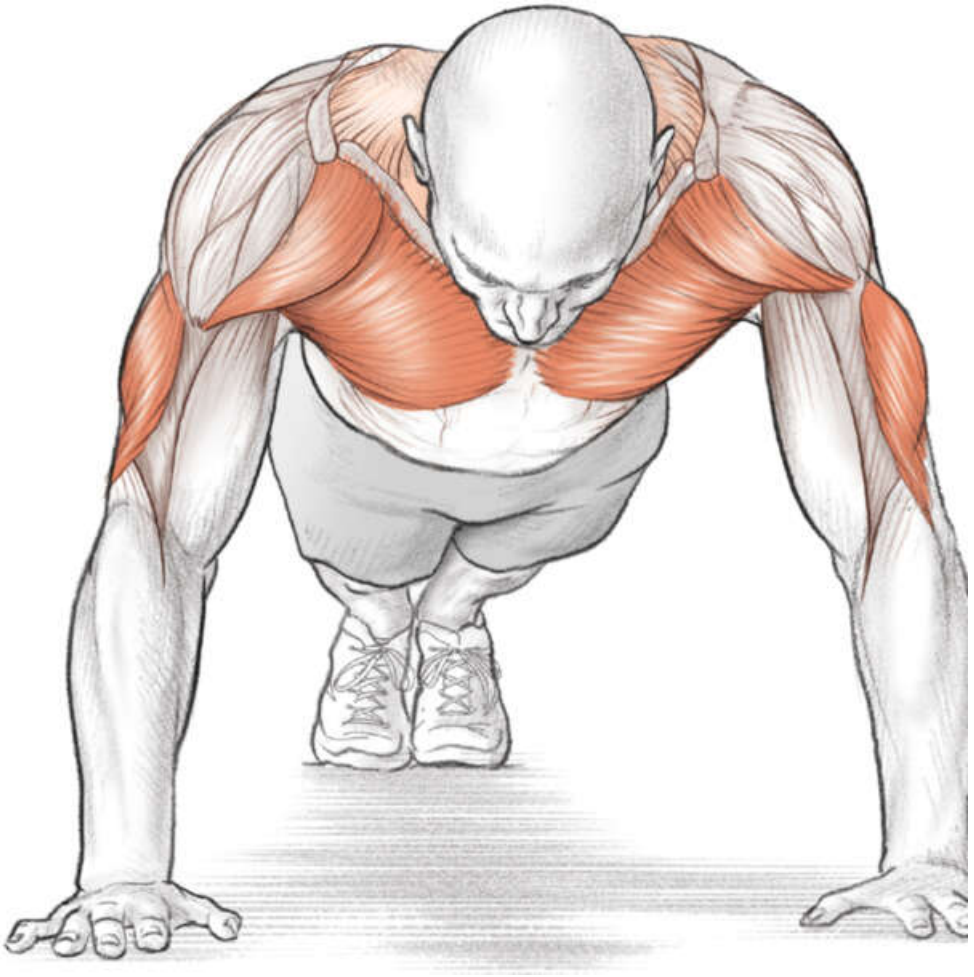
Chest

There's a reason Mondays have been called International Bench Press Day. Lifters around the world who want well-developed pectorals prioritize their workouts by training their chests first each week. While many exercisers are consumed with building the upper, middle, and lower areas of the pecs to their potential, some are less concerned with chest development. However, a subtle line of muscle traversing the sternum can be quite attractive, and given that multijoint chest exercises also can serve as great front delt and triceps builders, it makes sense to incorporate pectoral movements into a muscle-building routine.

Bodyweight training is well suited for chest training; all you need is a floor and you're good to go. It's essential that you pay attention to feeling the pectoral muscles working during multijoint pressing movements. Otherwise, the triceps and front deltoids can take over and rob the pecs of their neural activity. Bodybuilders call this concentration on muscle movement a *mind–muscle connection*, and it's one of the most important techniques you can use to enhance muscle development.

Chest Muscles

The pectoralis major (figure 4.1) has three functional subdivisions—the upper, middle, and lower regions. The upper region is called the *sternoclavicular head* because of its attachment to the clavicle, while the lower two regions are sometimes called the *sternocostal head* because of their attachment at the ribs. The pectoralis major serves as a transverse adductor of the shoulder (used when throwing a ball sidearm), a frontal shoulder adductor (used during a cable crossover), a sagittal shoulder flexor (used during a dip), and internal rotator of the shoulder (used in arm wrestling).



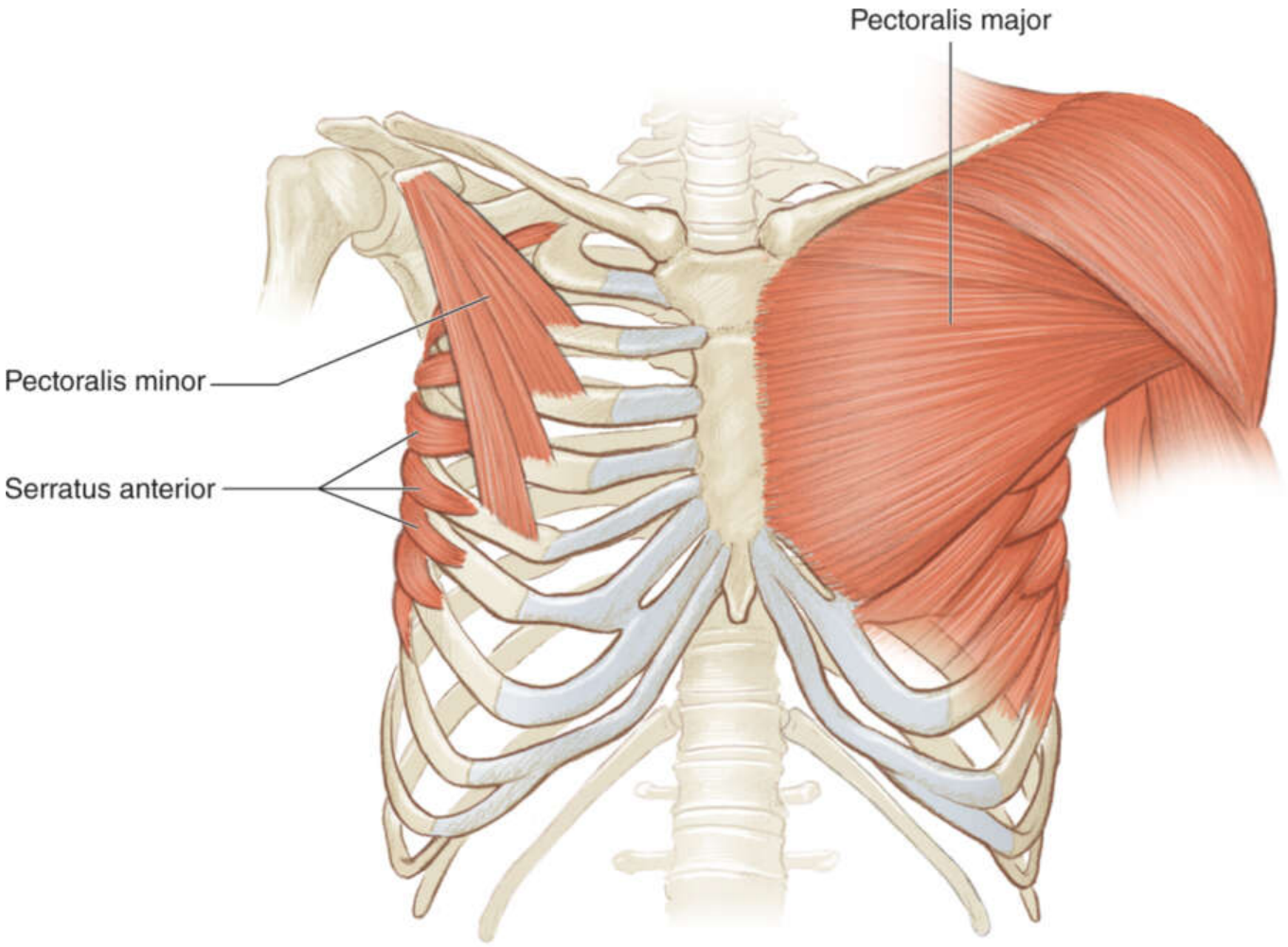


Figure 4.1 Muscles of the chest.

The pectoralis minor is a small muscle under the pectoralis major that protracts, downwardly rotates, and depresses the scapula. It is trained during its stabilizing function with exercises such as dips. The pectoralis minor is often tight, which can alter posture and restrict proper scapular function during overhead pressing movements. For this reason, it's a good idea to regularly perform pec stretches.

Chest Exercises

For maximal pectoral development, a variety of chest exercises are warranted because certain exercises are better suited to developing the upper, middle, or lower regions. It may be possible to develop the inner and outer pectoral regions as well; however, research has failed to confirm this. Women who seek defined pecs should focus on upper-pectoral development because this area is more visible on a woman's body than the middle or lower pecs. Many men develop adequate middle and lower pectorals through frequent bench pressing and push-up performance and should focus on upper-pectoral development for balanced aesthetics.

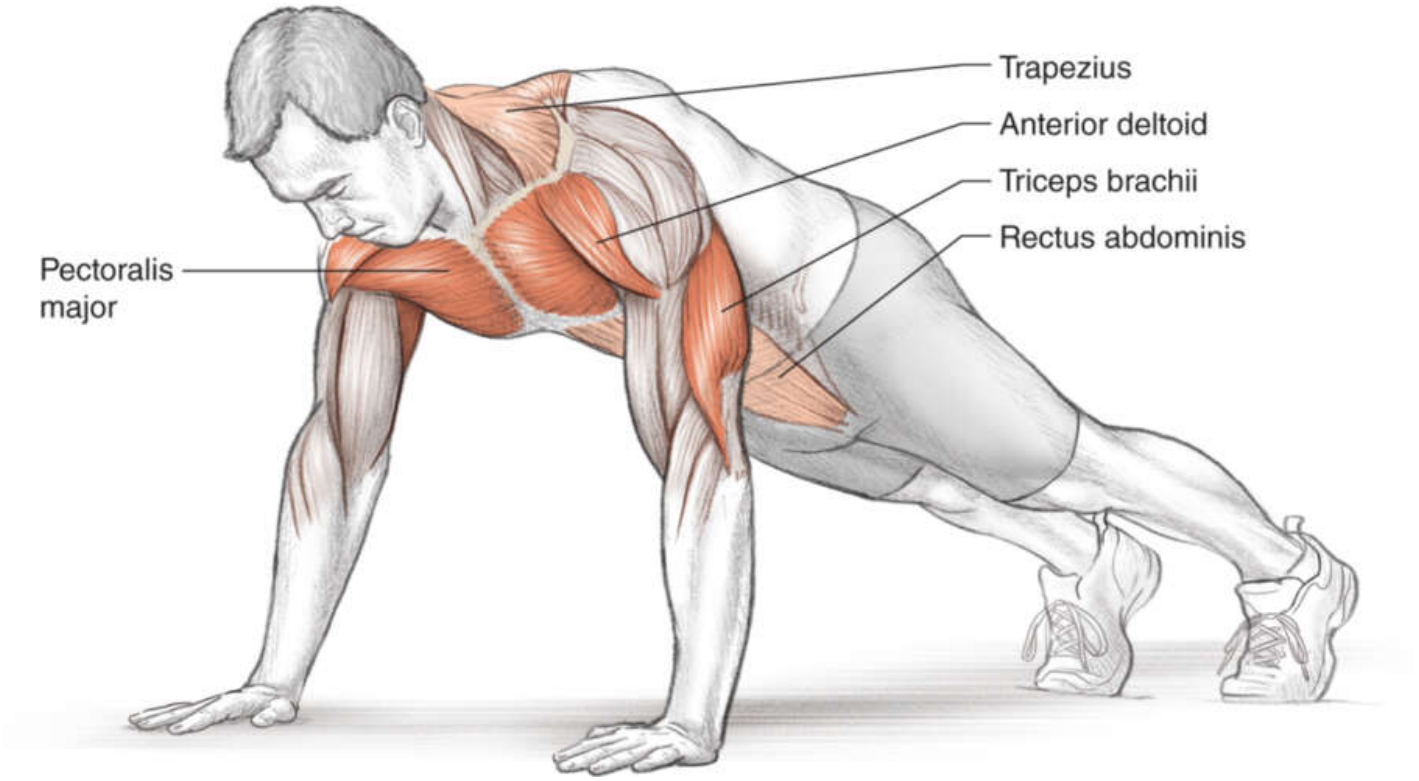
The push-up, called a *press-up* in some countries, is arguably the most popular bodyweight exercise and certainly the most common bodyweight chest exercise. It's important to progress to more challenging variations of the exercise for continued results. There are dozens of push-up types, and I have included the most effective push-up variations so you can achieve your goals.

It's critical to learn the proper way to perform a push-up from the get-go because most exercisers perform this movement incorrectly. I distinctly remember when I started performing push-ups. I was 15 years old and could barely manage three sets of six repetitions. I'm pretty sure my form wasn't up to par back then either. Fortunately, I stuck with it and didn't give up. Fast-forward to today, I'm now able to perform 60 nonstop push-ups. A nice fringe benefit of push-up performance is the core stability that comes along with it.

The pectorals also are involved in many sport actions. Pushing opponents forward as in American football or sumo wrestling relies heavily on the pecs. Straight punching like a jab or right cross involves the pecs, as does arced punching like hooks or uppercuts. Tennis, volleyball, racquetball, and handball actions involving overhead and swinging motions across your body such as serving, forehand strokes, and spiking involve the pectorals, as do throwing motions in baseball, softball, and American football. A shot-putter and discus thrower require strong and powerful pectorals to heave their implements the maximum distance. Mixed martial arts relies on the pecs for striking, clinching, takedowns, and grappling. Gymnasts and swimmers require strong pectorals for various maneuvers and strokes. Even track and field athletes train the pecs because a strong upper body can increase speed.

Some strength coaches prefer various types of push-up exercises to barbell bench pressing because they feel it's a safer and more natural movement pattern. Many feel that the scapular stabilizer requirements during the movement create strong and healthy shoulders and safeguards against injury. The push-up is also a military training staple. Gymnasts are often able to perform a bench press with twice their body weight even though they never bench press; their extremely strong upper bodies are developed through frequent push-up and dip exercises and grueling event practice. For optimal sport performance training, explosive pressing exercises are easy to perform through push-up movements that lend themselves to clapping and plyometric (repeated explosive movements) variations.

PUSH-UP



EXECUTION

1. Place your hands slightly wider than shoulder width and your feet close together on the ground with your body in a straight line from heels to head.
2. With your arms at a 45-degree angle, your hands positioned directly under your elbows, your glutes and abs contracted, and your entire body tight, lower yourself until your chest touches the ground.
3. Reverse the movement and raise your body until your elbows lock.

MUSCLES INVOLVED

Primary: Pectoralis major, triceps brachii, anterior deltoid

Secondary: Serratus anterior, trapezius, rectus abdominis

EXERCISE NOTES

Second to the biceps, the pectoralis major is the muscle that many people want to develop, as evidenced by our obsession with push-ups and bench presses. But this exercise isn't all show and no go. Push-ups build upper-body strength and power, which transfers to punching and pushing power. Make this a full-body exercise by engaging the core and keeping the glutes squeezed as tightly as possible throughout the set. Many people sag at the hips, place their hands too far apart, and fail to use a full range of motion. By engaging the glutes and abs, you'll prevent your hips from sagging. Place your arms at a 45-degree angle from your body (abducted position) and make sure your forearms and hands are directly under your elbows for maximum shoulder joint health. Look down to keep your neck in neutral position. Lower all the way and come up all the way for correct

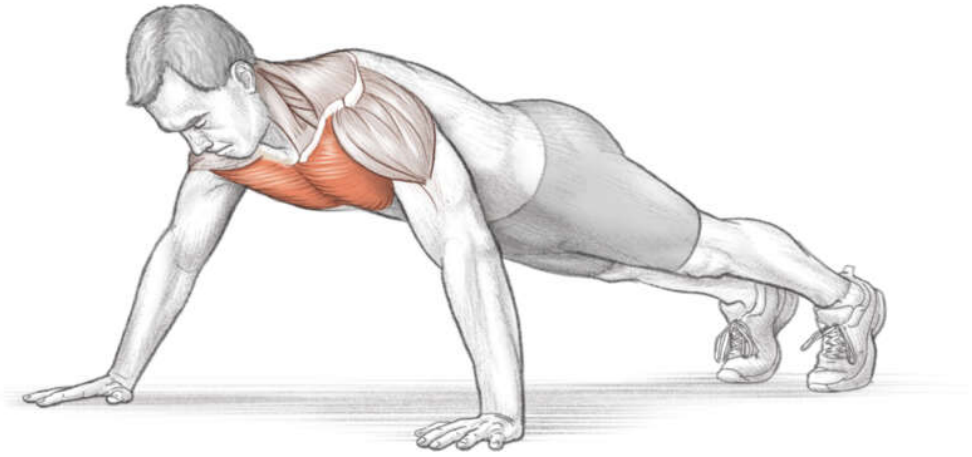
performance, which allows you to also strengthen the shoulder stabilizers and keep your shoulders healthy for years to come.

VARIATIONS

Short-Lever Push-Up

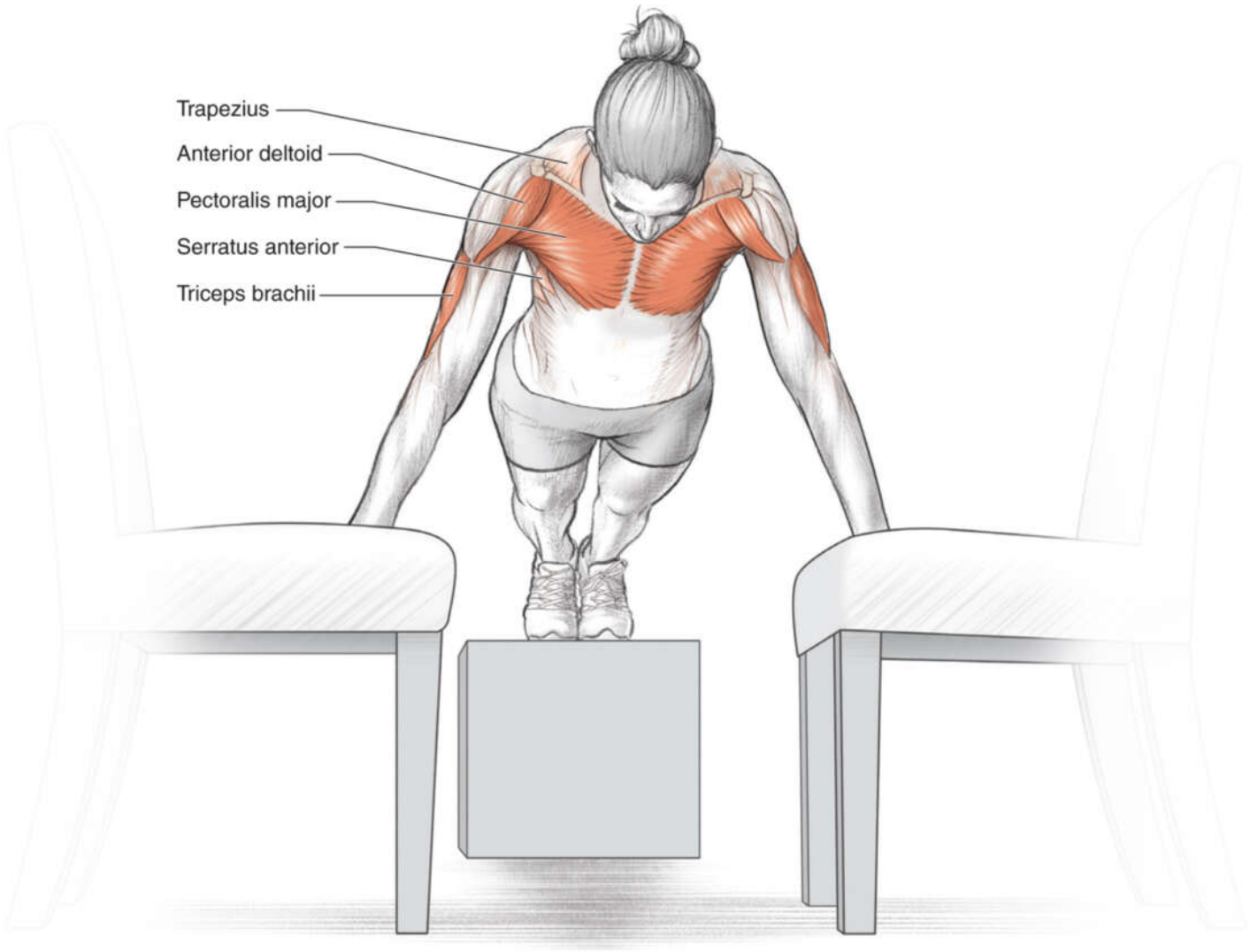
The short-lever push-up is a good variation for beginners because it uses about 20 percent less body weight than a regular push-up, thereby making the exercise easier. Keep your arms tucked and your body straight as you perform the push-up from your knees.

Wide-Width Push-Up



The wide-width push-up targets the pectoralis muscles differently than the regular push-up. To perform this movement, place your hands higher and wider on the floor compared to the standard version.

ELEVATED PUSH-UP



SAFETY TIP: **Use very sturdy, well-grounded props for this exercise.**

EXECUTION

1. Place your feet on top of a couch, chair, or box and your hands on top of two chairs positioned slightly wider than shoulder-width apart. You also could use objects such as a weight bench and two sturdy boxes.
2. Keeping your body in a straight line and your glutes tight, descend until you feel a stretch in your pecs.
3. Reverse the movement and push your body up until your elbows lock.

MUSCLES INVOLVED

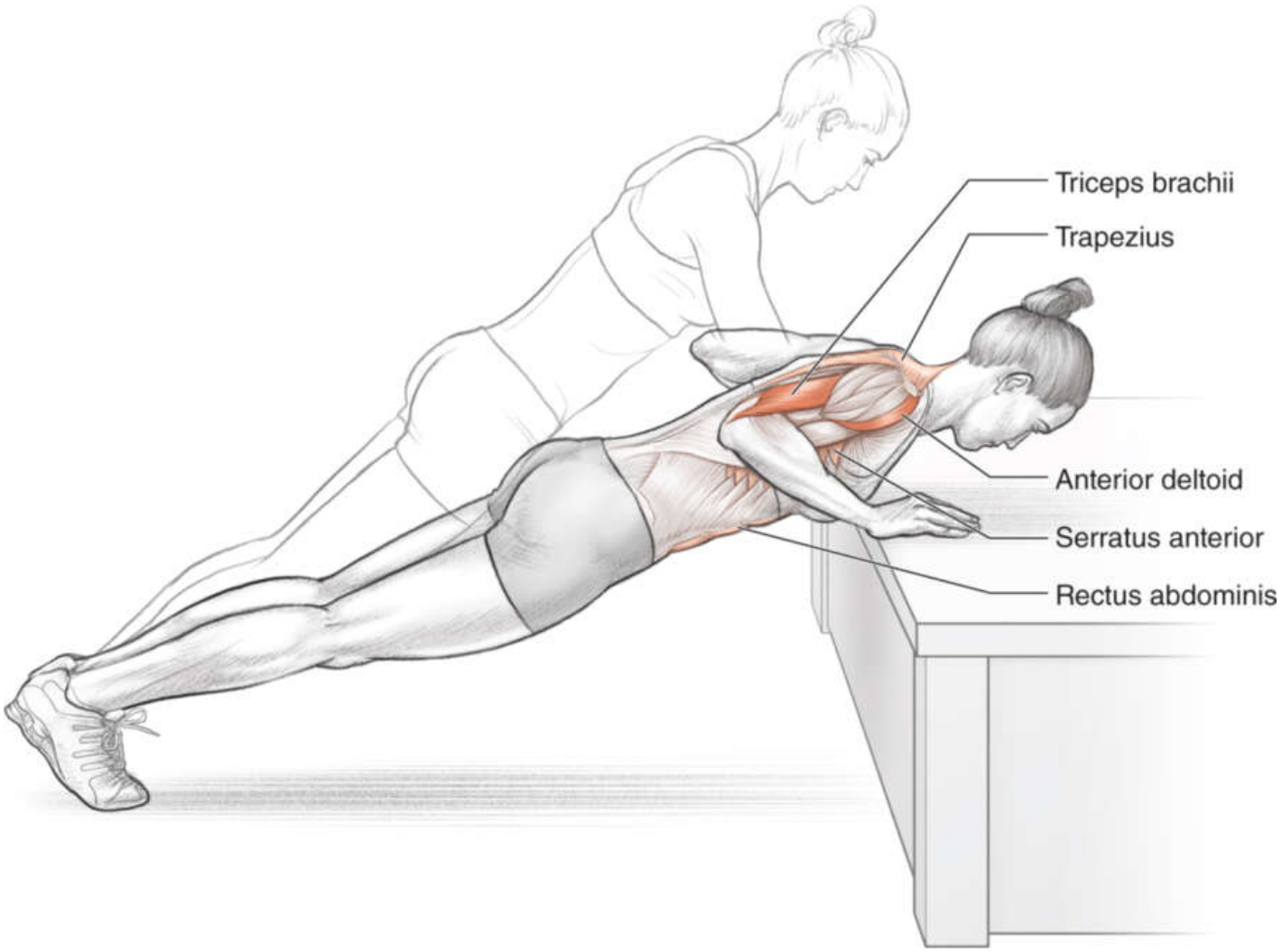
Primary: Anterior deltoid, pectoralis major, triceps brachii

Secondary: Serratus anterior, trapezius

EXERCISE NOTES

The elevated push-up is an advanced variation of the push-up, allowing an increased range of motion at the shoulder joint. This equates to more muscle activation and ultimately more muscle mass. You don’t want to aggravate the shoulder joints, so go only a few inches or centimeters deeper than you would during normal push-ups. Your forearms should remain perpendicular to the floor, and your hands are placed medium-width apart.

TORSO-ELEVATED PUSH-UP



EXECUTION

1. Place your hands on top of a sturdy chair or table slightly wider than shoulder width and your feet close together on the ground.
2. Keeping your glutes contracted and your body in a straight line, lower yourself until your chest touches the chair or table.
3. Reverse the movement and raise your body until your elbows lock.

MUSCLES INVOLVED

Primary: Pectoralis major, triceps brachii, anterior deltoid

Secondary: Serratus anterior, trapezius, rectus abdominis

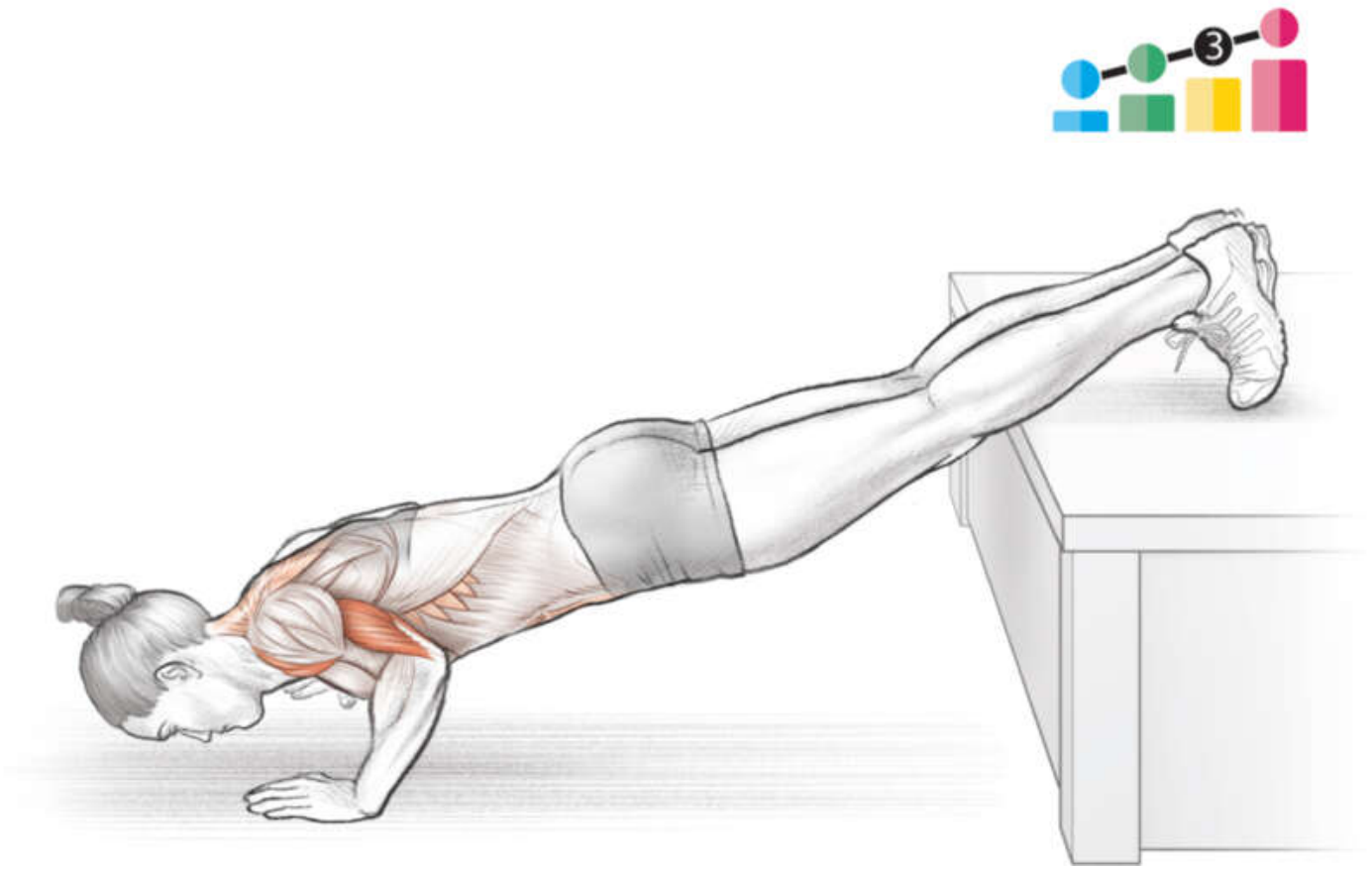
EXERCISE NOTES

This is a great beginner variation because it allows you to perform the movement with proper core activation and accustoms you to keeping your body long and straight. As you progress, perform the movement from a lower table or chair to bring yourself closer to the ground. Eventually, you'll be

able to perform push-ups from the floor.

VARIATION

Feet-Elevated Push-Up

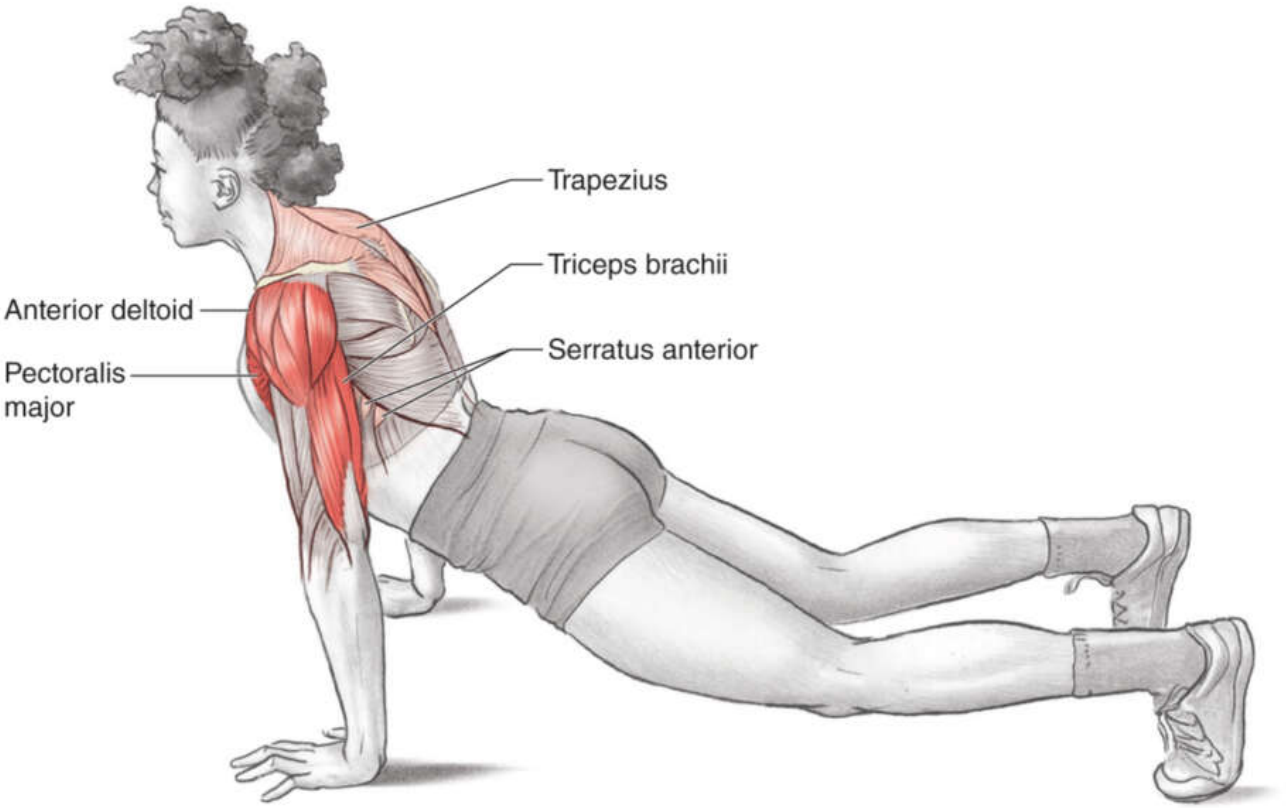


The feet-elevated push-up is an advanced pectoral exercise that uses a greater percentage of body weight and changes the angle to make the movement more like an incline press, thereby activating more upper-pectoral musculature. Although you need to go deep for maximal effectiveness, try not to look up too much at the bottom of the movement so you don’t hyperextend your neck.

HINDU PUSH-UP

Starting position in downward dog.

Middle position.



EXECUTION

1. Place your hands on the floor just wider than shoulder-width. Elevate your hips in the air, aiming to create a 45-degree angle with your torso relative to the ground.

2. Bend your knees so your hamstring flexibility will not be a limiting factor.
3. Let your elbows bend as you allow your torso to come forward and skim the ground until your torso is parallel to the ground.
4. Continue to push through and raise your chest, contracting the glutes at the very top.
5. Reverse the motion to return to the starting position.

MUSCLES INVOLVED

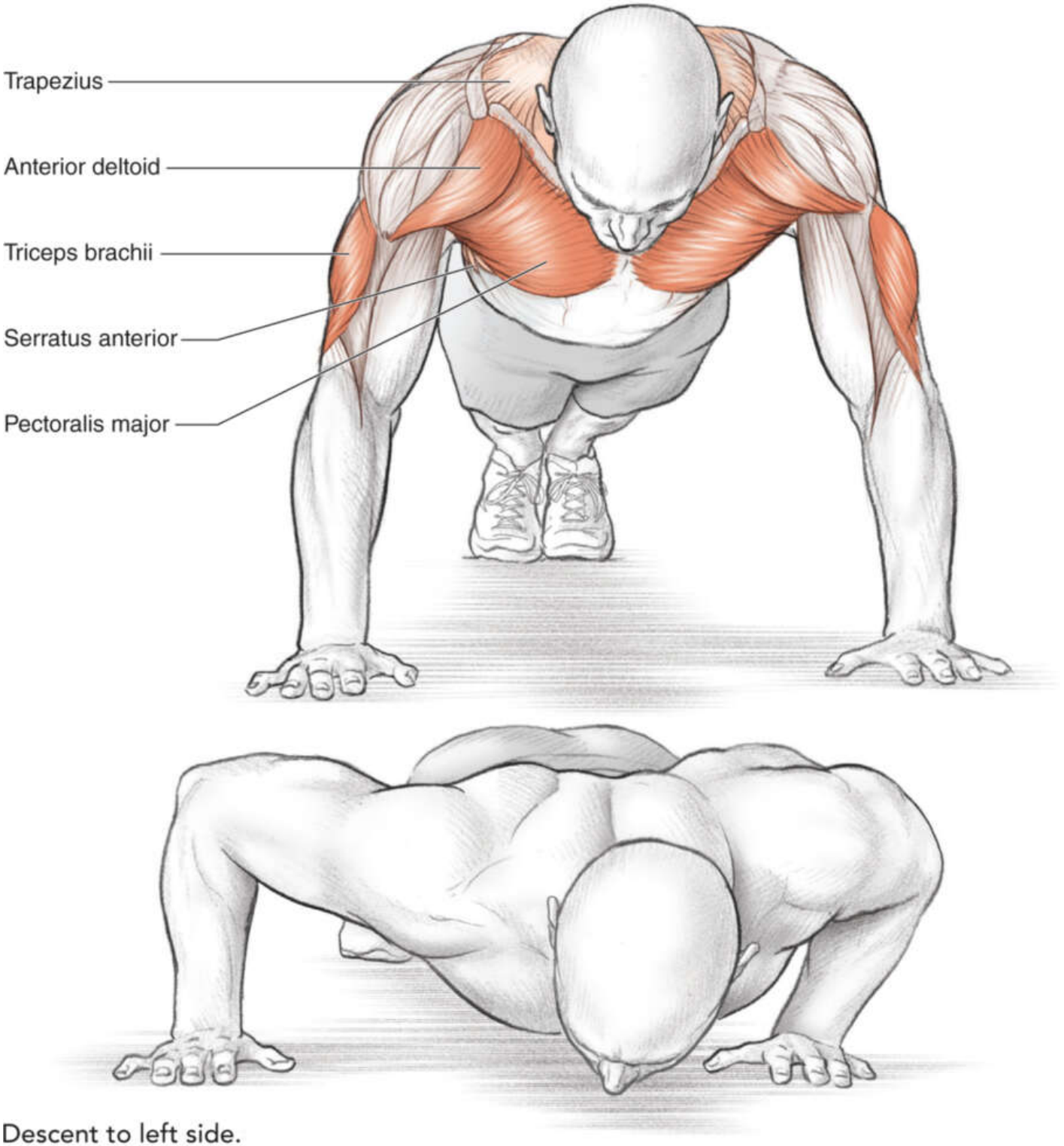
Primary: Anterior deltoid, pectoralis major, triceps brachii

Secondary: Serratus anterior, trapezius

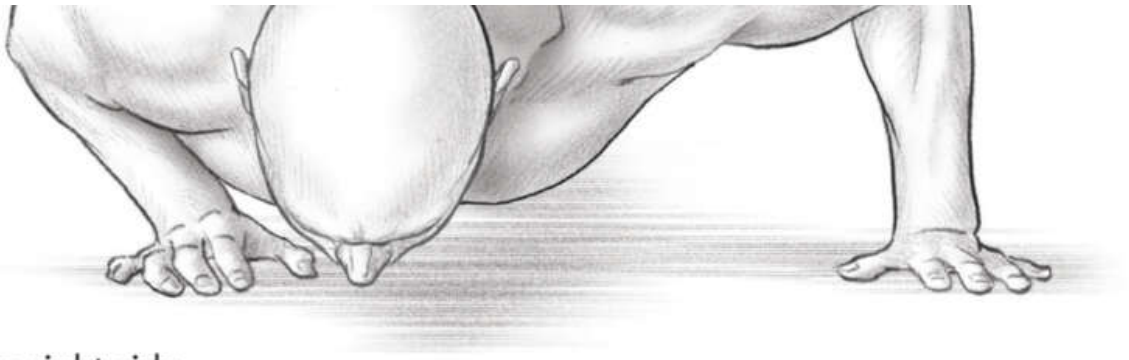
EXERCISE NOTES

The Hindu push-up not only stimulates the delts but also can help with small postural muscles in the spine. Think of letting your body glide through the range of motion rather than your arms fighting against the position. Since you're extending your torso at the top, you can expect some lumbar extension; however, contract your glutes to avoid excessive range of motion.

SIDE-TO-SIDE PUSH-UP



Descent to left side.



Descent to right side.

EXECUTION

1. Begin in a standard push-up position, with your feet close together, your toes on the floor, and your hands under your shoulders.
2. As you descend into the push-up, lean to one side, placing more stress on the side that you're leaning toward.
3. Push up to lockout and alternate on the other side.

MUSCLES INVOLVED

Primary: Anterior deltoid, pectoralis major, triceps brachii

Secondary: Serratus anterior, trapezius

EXERCISE NOTES

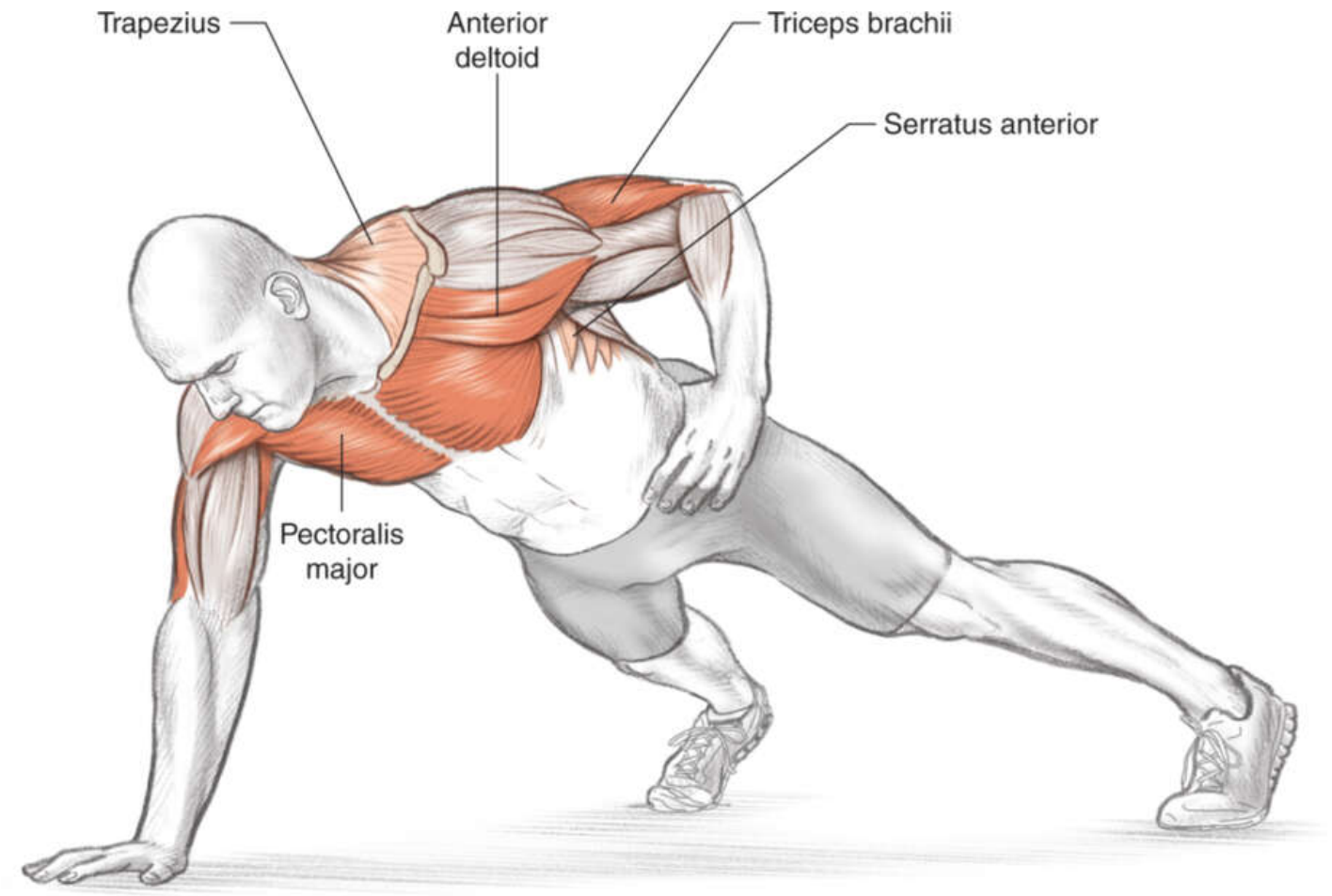
The side-to-side push-up is an advanced variation that places more stress on the targeted side. The side you are targeting will take on about 65 percent of the load while the other side will take on about 35 percent. This variation provides a challenging core workout because it's difficult to maintain proper body position throughout the movement. Try to resist excessive lateral and rotary spinal motion during the set.

VARIATION

Sliding Side-to-Side Push-Up

You can use two paper plates on carpet to perform the sliding side-to-side push-up. You also can use commercially available sliding exercise disks or, on a slick floor, two small hand towels. This is a highly challenging shoulder and core movement. Alternate hands, performing a push-up with one arm while sliding the other hand up in front of your body. Control the core and prevent excessive shifting and twisting.

ONE-ARM PUSH-UP



EXECUTION

1. Take a wider-than-normal stance. Place one arm under your body and grab your upper outer hip with the nonworking arm.
2. Lower your body while keeping the grounded arm tucked in close to your torso, keeping your body straight, your core tight, and your hips square.
3. Lift yourself to lockout while preventing excessive lateral and twisting motions.

MUSCLES INVOLVED

Primary: Anterior deltoid, pectoralis major, triceps brachii

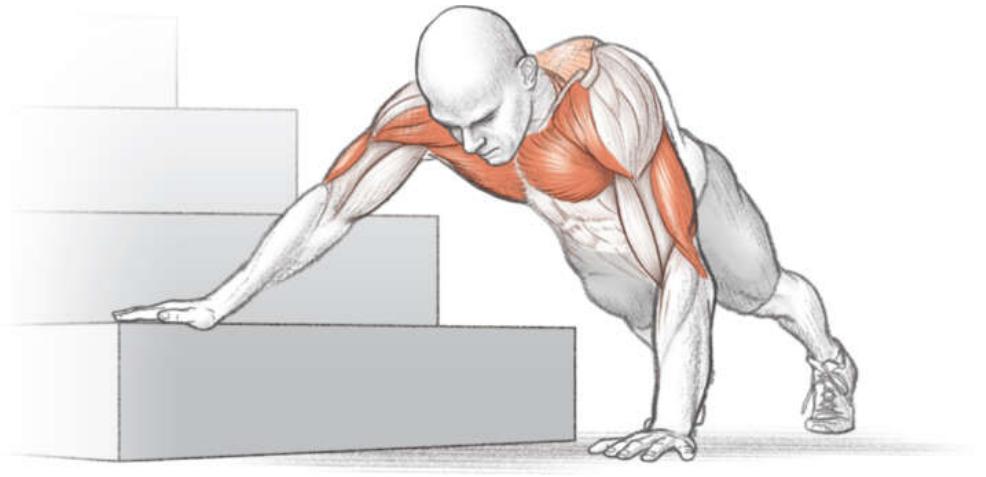
Secondary: Serratus anterior, trapezius

EXERCISE NOTES

The one-arm push-up is the most challenging push-up variation included in this book. Build up to performing this movement by starting with a short-lever position from your knees or from a torso-elevated position with your hand on a sturdy table or chair. You can also simply lower your body by performing controlled negatives (lower yourself slowly) until you're able to push yourself back up properly. Control the side-to-side and rotary motions with strong core contractions.

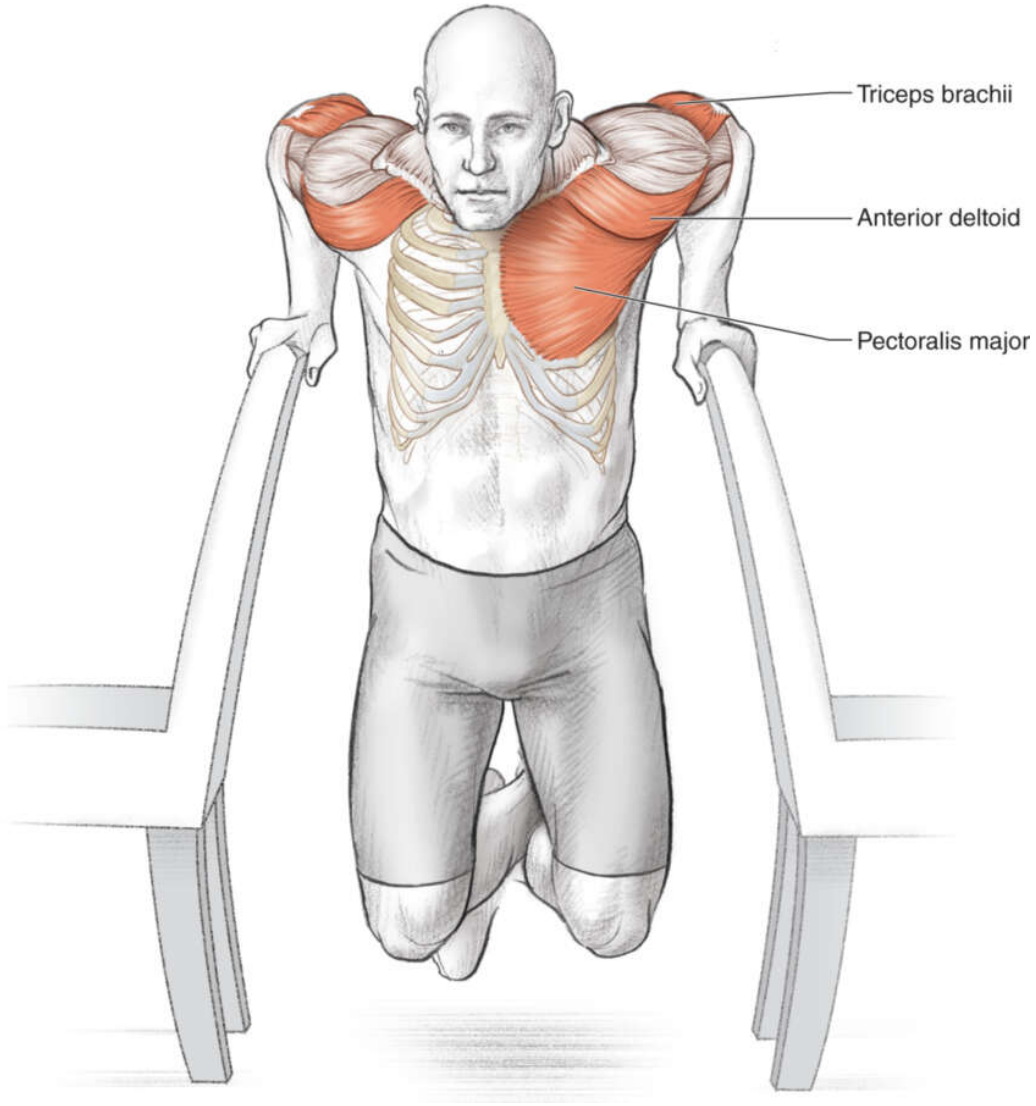
VARIATION

Self-Assisted One-Arm Push-Up



You can perform self-assisted one-arm push-ups by placing one hand on top of a sturdy chair, weight bench, or stair and relying on the other arm, the hand on the ground, as much as possible to execute the push-up. The hand on the chair or bench provides the minimum resistance to help you achieve the repetition. This is an effective movement and is a valuable intermediate exercise between two-arm push-ups and one-arm push-ups.

DIP



SAFETY TIP: **Use very sturdy props or, if available, parallel bars.**

EXECUTION

1. Begin with your hands placed on the backs of chairs or tables and your knees bent so your feet are off the ground. Instead of chairs or tables, use parallel bars or chest dip bars, if available.
2. Keeping your forearms relatively vertical, lower your body until you feel a big stretch in your pecs. Slightly lean forward.
3. Reverse the movement until your arms are locked out.

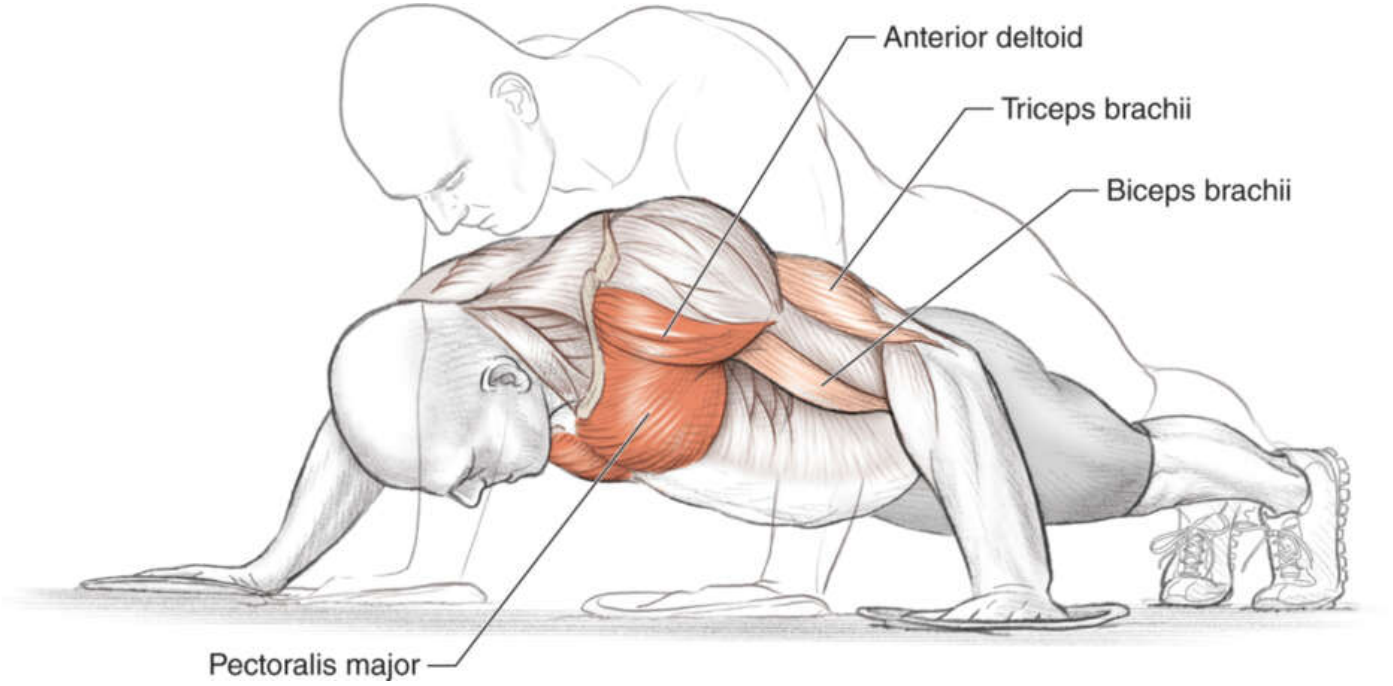
MUSCLES INVOLVED

Primary: Anterior deltoid, pectoralis major, triceps brachii

EXERCISE NOTES

The dip is an advanced pectoral movement that requires tremendous upper-body strength, especially for larger people. Most people fail to use a full range of motion during this movement and therefore do not receive an optimal workout. Keeping your forearms perpendicular to the floor while leaning your trunk forward places the tension on your pectorals and spares your elbows. Keep your elbows tucked next to your body and don’t let them flare outward. Go deep but not so deep that you aggravate your shoulder joints. Use your triceps up top to lock your elbows.

SLIDING FLY



EXECUTION

1. Begin in standard push-up position with both hands on paper plates, flared out slightly. You also can use commercially available sliding exercise disks or, on a slick floor, two small hand towels.
2. Lower your body while sliding your arms out away from your body until your chest touches the floor.
3. Slide the plates together while pushing your body up to the starting position.

MUSCLES INVOLVED

Primary: Anterior deltoid, pectoralis major

Secondary: Biceps brachii, triceps brachii

EXERCISE NOTES

The sliding fly is an excellent way to target the pectorals. This movement is advanced, and you may have to focus on controlled negatives, which involve lowering your body slowly, before you can perform the full movement properly. In this case, you could perform a controlled negative from your feet and then drop to your knees and perform the concentric (positive) upward movement until you are able to do the exercise from your feet for the entire repetition. Make sure you're stretching your pecs and keeping your body in a straight line. Ensure that this movement is a fluid gliding motion and not choppy.

VARIATION

Short-Lever Sliding Fly

Another way to learn this movement is to shorten the lever and perform this movement from your knees instead of your feet. This will allow you to work your way up to performing standard repetitions and will allow you to use good form from the get-go.

CHAPTER 5

Core

Core training has become an increasingly popular activity over the past decade—and for good reason. Sound core function is important for movement efficiency and joint health, not to mention injury prevention. And of course, there are the obvious effects on your appearance. (After all, who doesn't covet six-pack abs?)

Putting together an optimal core training program requires three fundamental components: (1) an understanding of the muscles surrounding the core and the joint actions performed by the core, (2) knowledge of proper exercise form and volume prescription, and (3) the wisdom to tie it all together for maximal structural balance, muscular strength, and core stability. Accordingly, there has been a shift in the way fitness professionals have approached core programming over the years. We've gone from sit-ups to crunches to planks to now realizing that all types of core training can be beneficial, depending on the goals and abilities of the exerciser. The good news is that although companies have made a killing through infomercials selling nifty abdominal exercise devices, research has consistently shown that all you need for a great core workout is your own body and a floor to lie on. Most infomercial products not only fail to outperform bodyweight movements in muscle activation but also are generally flimsy and awkward to use.

Core Muscles

The definition of the core is a bit nebulous. Ask five personal trainers what comprises the core, and you may get five different answers. Although most will agree that it includes the lumbar spine (low back), pelvis, and hip joints, there is little consensus on the specific musculature involved. Some say that it encompasses all the muscles between your knees and shoulders, while others feel that the core is limited to the muscles between the ribcage and pelvis. As you can see, determining the muscles of the core is a complicated process.

I classify the core into inner and outer muscles. The outer core includes the larger muscles such as the rectus abdominis, internal and external obliques, erector spinae, gluteus maximus, latissimus dorsi, quadratus lumborum, and psoas (figures 5.1 and 5.2). These muscles are primarily responsible for producing and resisting movement. The inner core muscles form a cylinder that contracts just before and during limb movement to protect the spine by providing intra-abdominal pressure. These inner core muscles consist primarily of the multifidus in the rear, the transversus abdominis in the front and on the sides, the diaphragm up top, and the pelvic floor muscles on the bottom (figures 5.3 and 5.4).

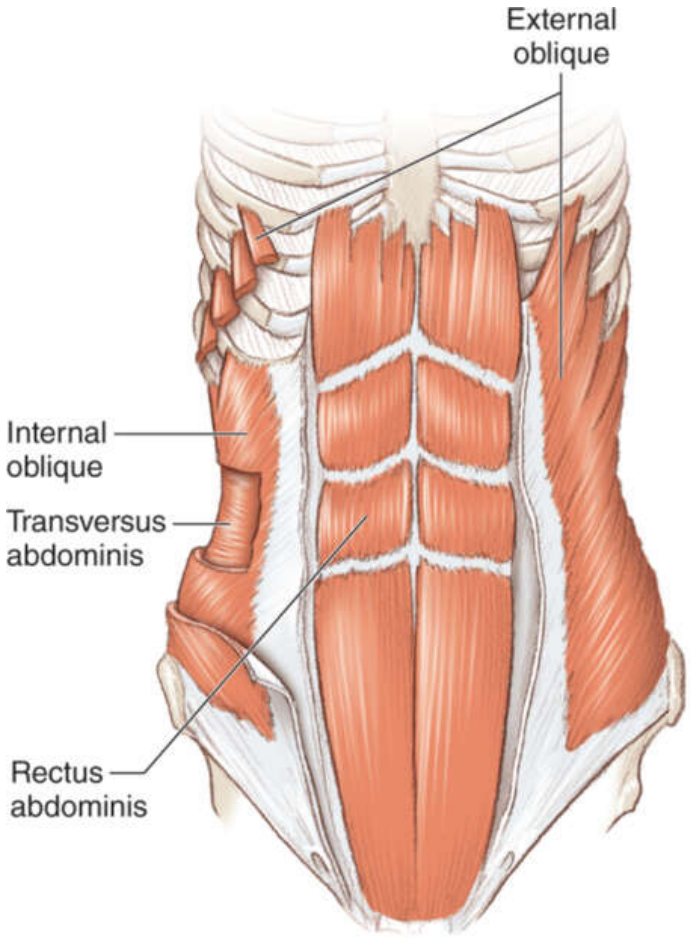


Figure 5.1 Rectus abdominis, transversus abdominis, and internal and external obliques.

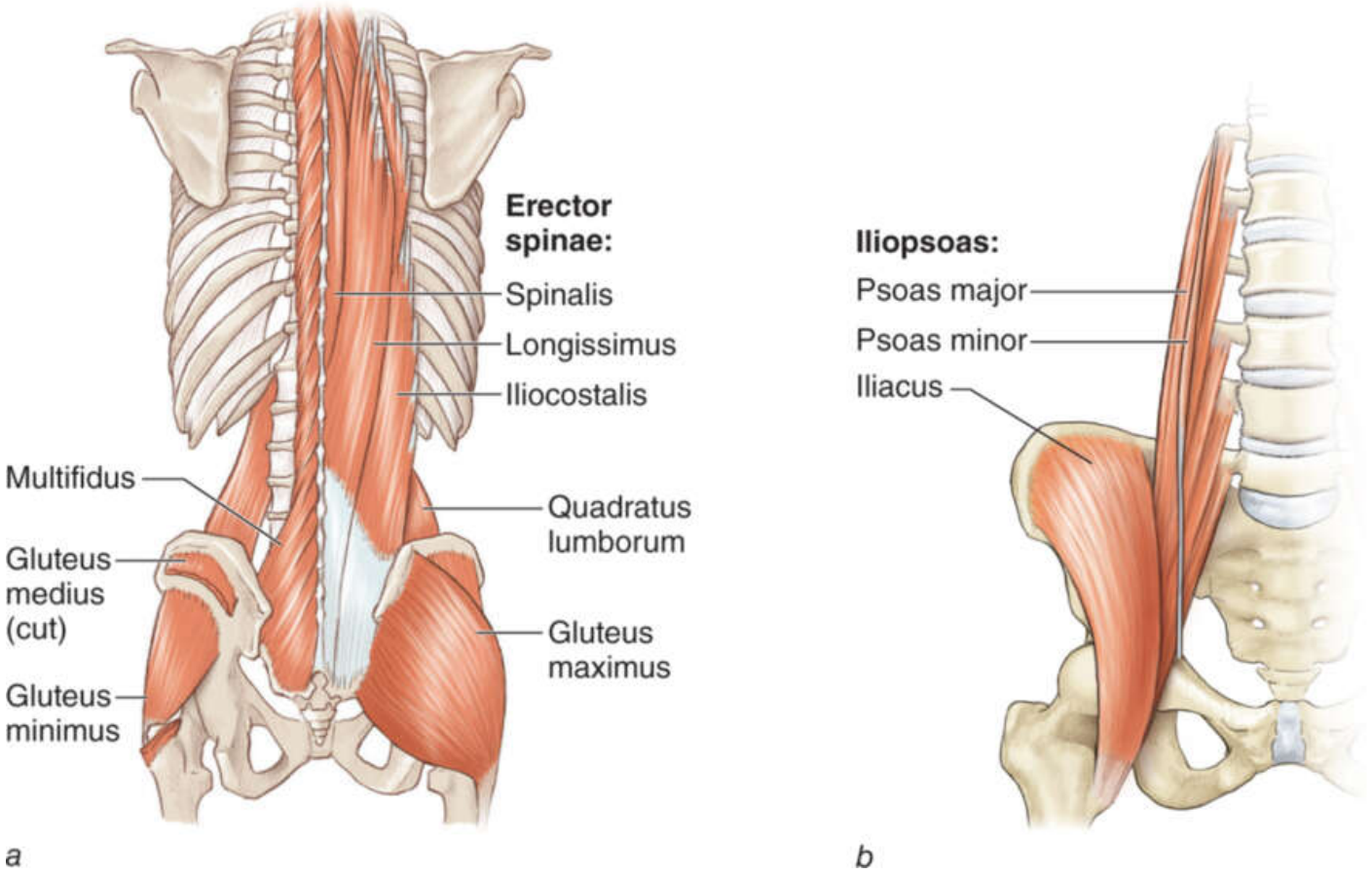


Figure 5.2 Core muscles on the *(a)* back and *(b)* front of the body.

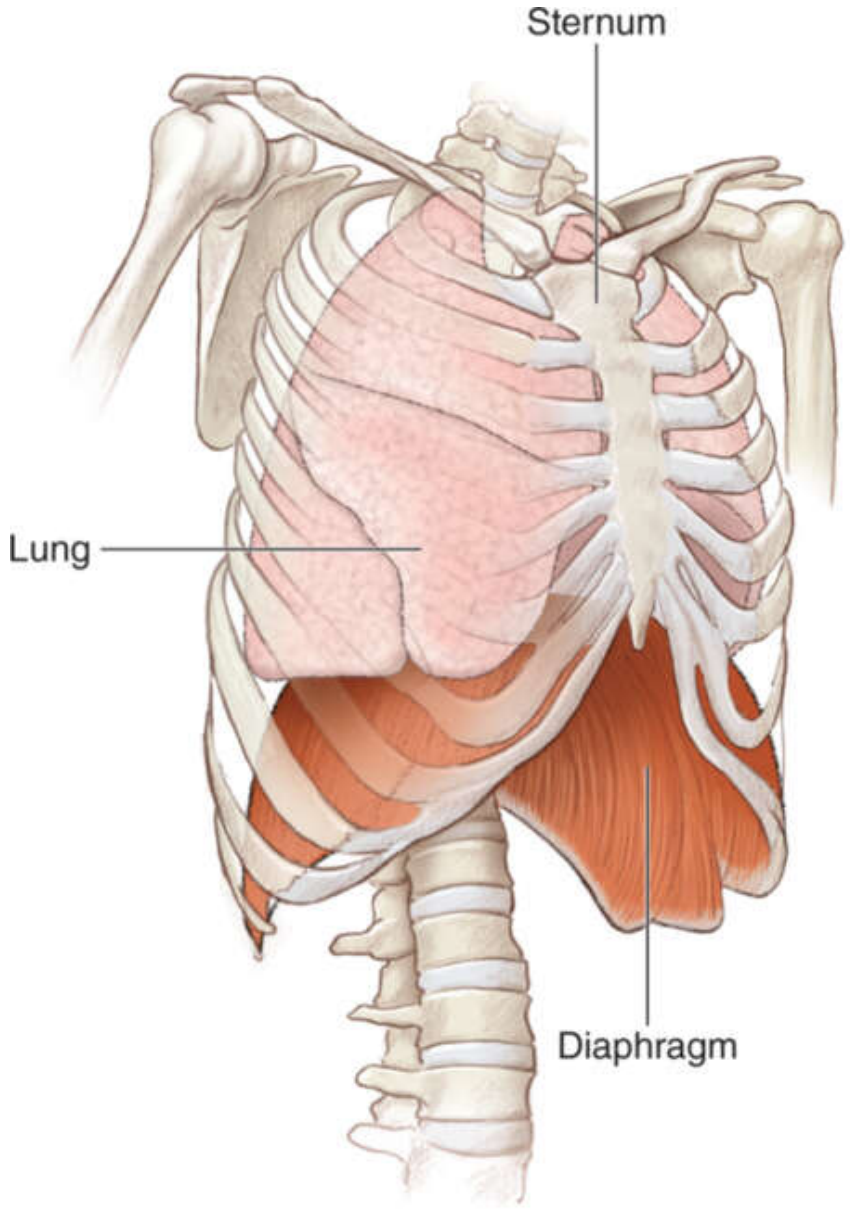


Figure 5.3 Diaphragm.

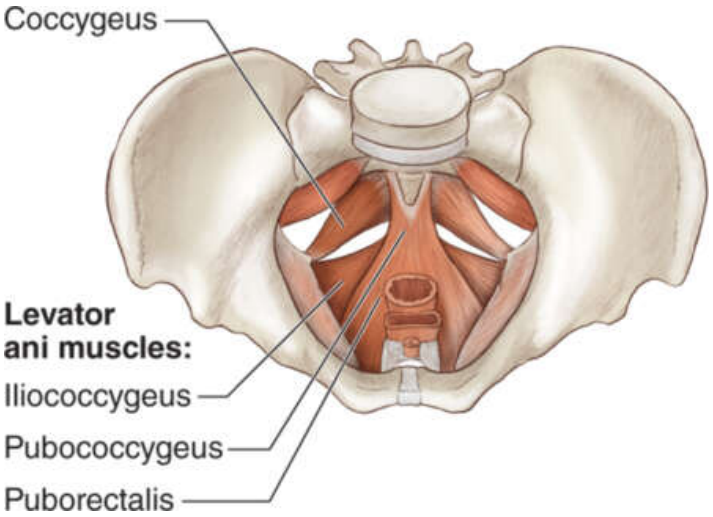


Figure 5.4 Pelvic floor muscles.

Dynamic core exercises—exercises that involve movement such as spinal flexion, extension, lateral flexion, and rotation—are better suited for targeting individual muscles and teaching the core to produce and reduce force. Core-stability exercises—exercises that keep the spine in a static, or isometric, position—are better suited for teaching the body to resist movement and engage the

inner core unit. Both exercises are important for optimal core function and performance.

Core Actions and Movements

The spine and pelvis work in combination to carry out movement. The lumbar spine can flex, extend, flex to either side, and rotate, while the pelvis can tilt to the front, back, and side and can rotate. And let's not forget the hips, which can flex, extend, abduct (move the leg away from the middle), adduct (bring the leg toward the middle), and internally and externally rotate. These actions require different muscle contributions to carry out the tasks. As you can imagine, many muscles are involved to varying degrees in the various joint actions of the core during activity.

In sports, the core is highly involved in nearly every movement. Force is transferred between the lower and upper body through the core, so the core muscles must modulate their stiffness and timing to maximize the transfer of energy from one segment to the next. A weak core is not able to control excessive movement, which allows energy to leak instead of transferring it efficiently from one segment to the next.

The spine and pelvis move to various degrees during sporting movement. For example, during the stance phase of running when the body passes over the supporting foot, the lumbar spine typically extends while the pelvis tilts forward. During rotary actions such as swinging a bat, the front hip internally rotates while the back hip externally rotates, and the external oblique on one side and internal oblique on the other side contract to assist this rotation through a stiff core. Ample motion at the hips and thoracic spine (upper back) limit the amount of rotation in the low back while transferring energy from the hips to the upper extremities. The lumbar spine (low back) must be strong enough to resist being extended during collision sports such as American football and rugby. The core is highly involved in all major sporting movements that happen when your feet are primarily on the ground, such as sprinting, jumping, twisting, throwing, and cutting from side to side. It is also involved in other sporting movements, such as swimming.

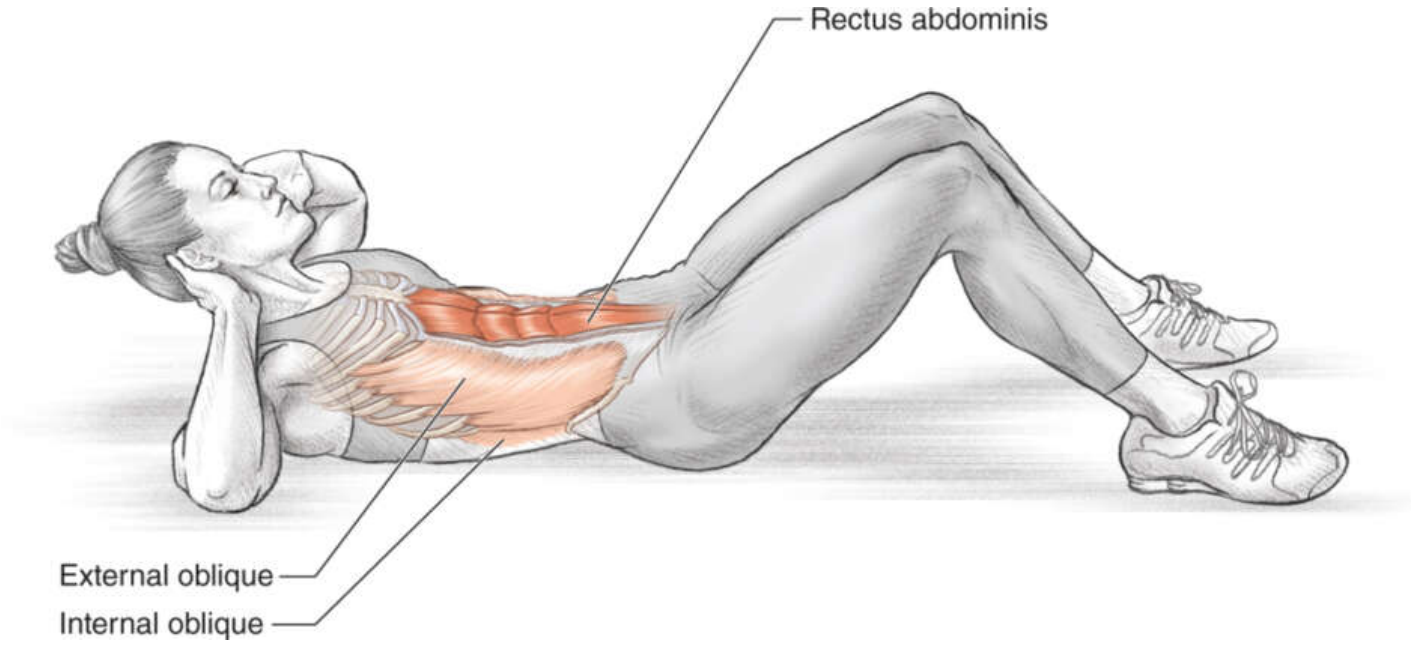
Strong core muscles play a role in posture as well. In particular, the erectors must be strong to prevent thoracic kyphosis (hunchback), and the abdominals must be strong enough to prevent lumbar lordosis (swayback) and excessive anterior pelvic tilt. Maintaining balanced core strength helps the body properly distribute forces during heavy and explosive movement, which spares the spine and prevents low-back pain.

Core Exercises

This chapter has a variety of core exercises that will improve your ability to produce motion through concentric power, resist motion through isometric power, and absorb or decelerate motion through eccentric power. Each of these qualities is important in sports and functional movement. The chapter not only has a balance of dynamic and static, or isometric, exercises but also varies exercises in terms of planes and directions of movement. For example, frontal plane exercises are well suited for transferring to lateral movement, sagittal plane exercises are well suited for transferring to forward and backward movement, and transverse plane exercises are well suited for transferring to rotary movement. Finally, the chapter has a balance of beginner and advanced exercises to accommodate a wide range of ability and to increase power, strength, and endurance in addition to creating well-developed abs.

You must understand the correct exercise technique for the different areas of your core. Your hips and thoracic spine (upper back) should be mobile and move efficiently; however, you should limit spinal motion in the lumbar region. For example, when performing crunches and side crunches, your upper back should move the most, while your lower back, or lumbar spine, moves the least. It is also essential to maintain good posture during core-stability exercises. Proper body position while you're building isometric strength and endurance will transfer to the field, so be aware of what your body looks like when holding core-stability exercises.

CRUNCH



EXECUTION

1. Lie supine with your knees bent, feet on the floor, and hands at your ears. Hold your head and neck in a neutral position, not flexed or twisted.
2. Flex your spine to 30 degrees of trunk flexion, with most of the motion occurring in your thoracic spine, keeping your head and neck in proper position.
3. Hold at the top briefly and then lower your trunk slowly under control.

MUSCLES INVOLVED

Primary: Rectus abdominis

Secondary: External oblique, internal oblique

EXERCISE NOTES

The crunch is one of the most basic core exercises. It targets the abdominal wall muscles and strengthens the dynamic trunk-flexion role of the core, which is critical for sport actions such as throwing a baseball, serving a tennis ball, or spiking a volleyball.

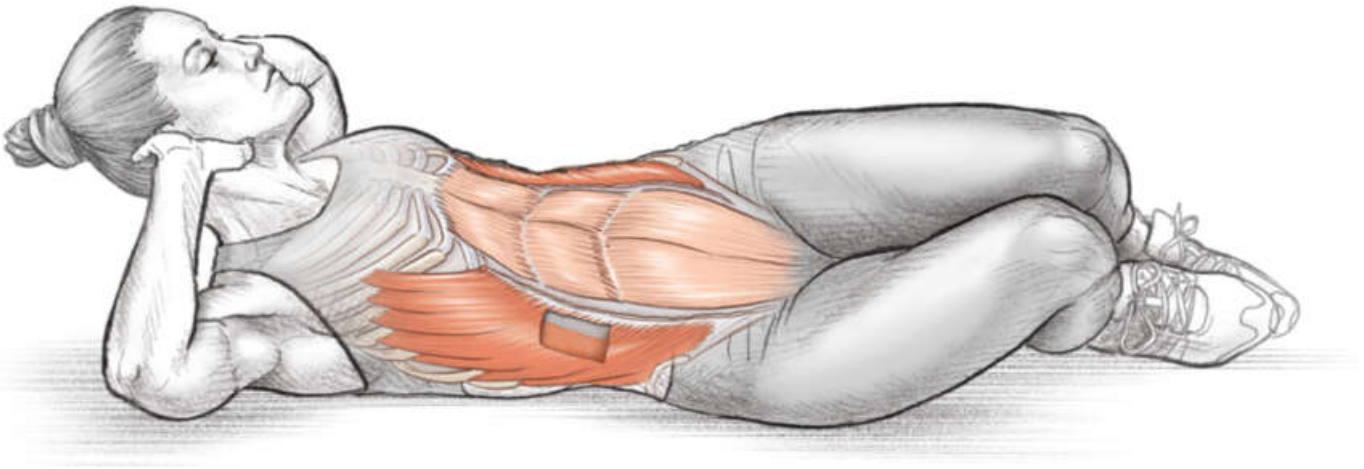
Limit the flexion of your low back during the crunch and focus most of the motion in your upper back. Raise the torso to just 30 degrees of total trunk flexion and make sure you accentuate the isometric portion (the static hold when you keep your body motionless) at the top as well as the eccentric (lowering) component.

VARIATIONS

Reverse Crunch

While the standard crunch targets the upper rectus abdominis a bit better than the lower rectus abdominis, if done correctly, the reverse crunch will elicit more lower rectus abdominis and oblique activity because of the posterior pelvic tilting involved in the variation. Start with your hips flexed at 90 degrees and your knees bent. Pull your knees toward your head and raise your buttocks off the ground.

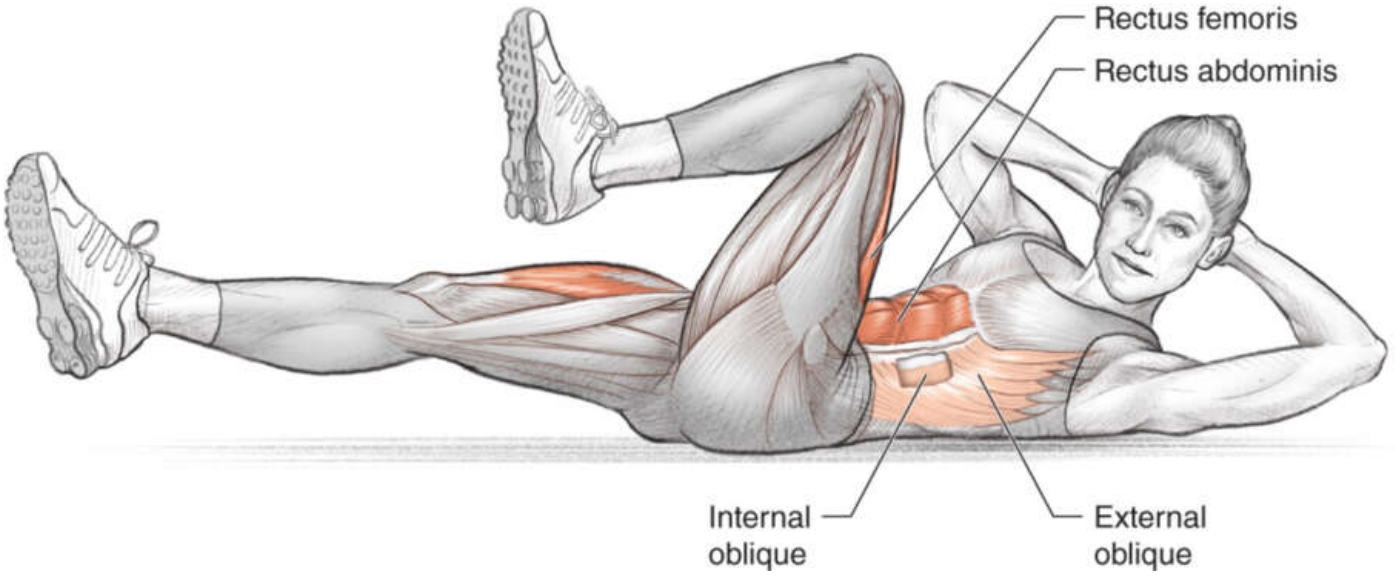
Side Crunch



The side crunch variation is performed by shifting onto your side with your hips flexed and raising your trunk to about 30 degrees of lateral trunk flexion. Performing the crunch this way targets the

obliques.

BICYCLE



EXECUTION

1. Lie supine with your hips flexed in the air at 90 degrees.
2. With your hands at your ears, flex and rotate your upper spine by raising your torso off the ground about 30 degrees and twisting while flexing the opposite hip until your elbow and opposite knee meet each other.
3. Reverse the movement and twist to the opposite side, as if riding a bicycle.

MUSCLES INVOLVED

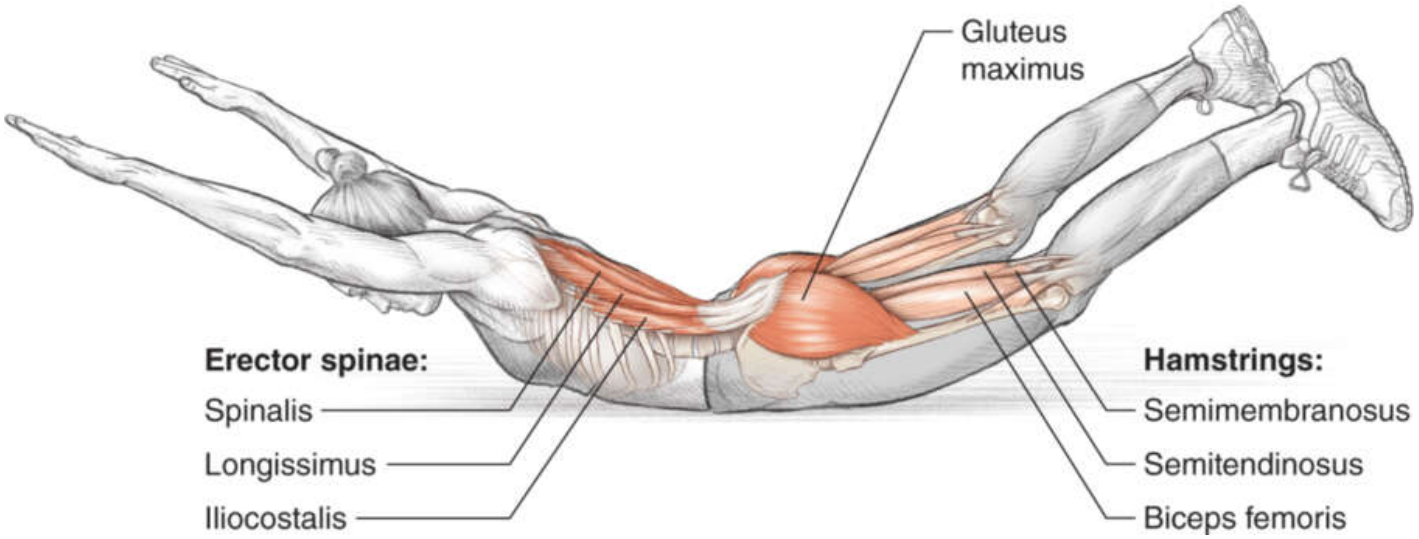
Primary: Rectus abdominis, psoas, rectus femoris

Secondary: Internal oblique, external oblique

EXERCISE NOTES

The bicycle is an effective abdominal movement that works the core in several capacities, including trunk flexion, trunk rotation, and hip flexion. The motion requires a balance of strength and coordination. Once you get the hang of it, you'll feel it working the entire core. Don't move too much at the lumbar spine. Rise just enough to lift your shoulder blades off the floor.

SUPERMAN



EXECUTION

1. Lie prone on the ground with your arms stretched forward in front of your body, palms down, and your knees nearly fully extended and feet shoulder-width apart.
2. Simultaneously raise your torso and legs off the ground, hyperextending at the hips and not just the spine. Target the glutes and hamstrings in addition to the spinal erectors.
3. Hold the top position briefly and then lower your body to the starting position.

MUSCLES INVOLVED

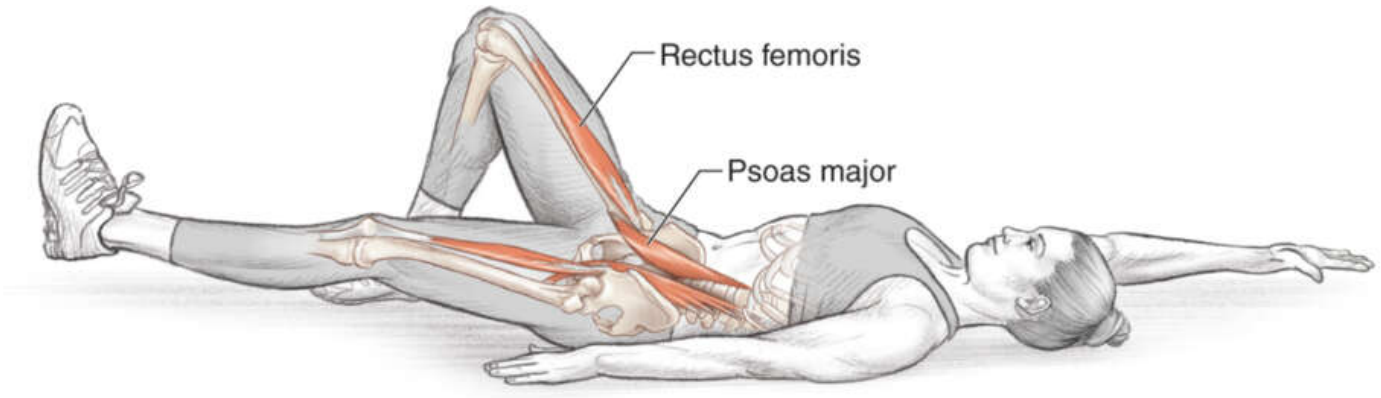
Primary: Gluteus maximus, erector spinae (spinalis, longissimus, iliocostalis)

Secondary: Hamstrings (biceps femoris, semitendinosus, semimembranosus)

EXERCISE NOTES

The superman exercise is an awesome core exercise if performed properly. Many use poor form by overextending the lower back and trying to isolate the erector spinae. This is not ideal. The exercise is more productive if you limit the amount of lumbar hyperextension and instead attempt to hyperextend your hips by squeezing the gluteal muscles and hamstrings and raising your legs off the ground. Elevate your legs and torso to about a 20-degree angle relative to the ground and rely heavily on the gluteal muscles.

DEAD BUG



EXECUTION

1. Lie supine on the ground with your knees and hips bent at 90-degree angles. Pull your abs in and maintain a light contraction.
2. Contralaterally (using the opposite arm and leg), straighten out one arm and leg as much as you can. Keep the torso from rotating laterally.
3. Return to the starting position and repeat with your other arm and leg.

MUSCLES INVOLVED

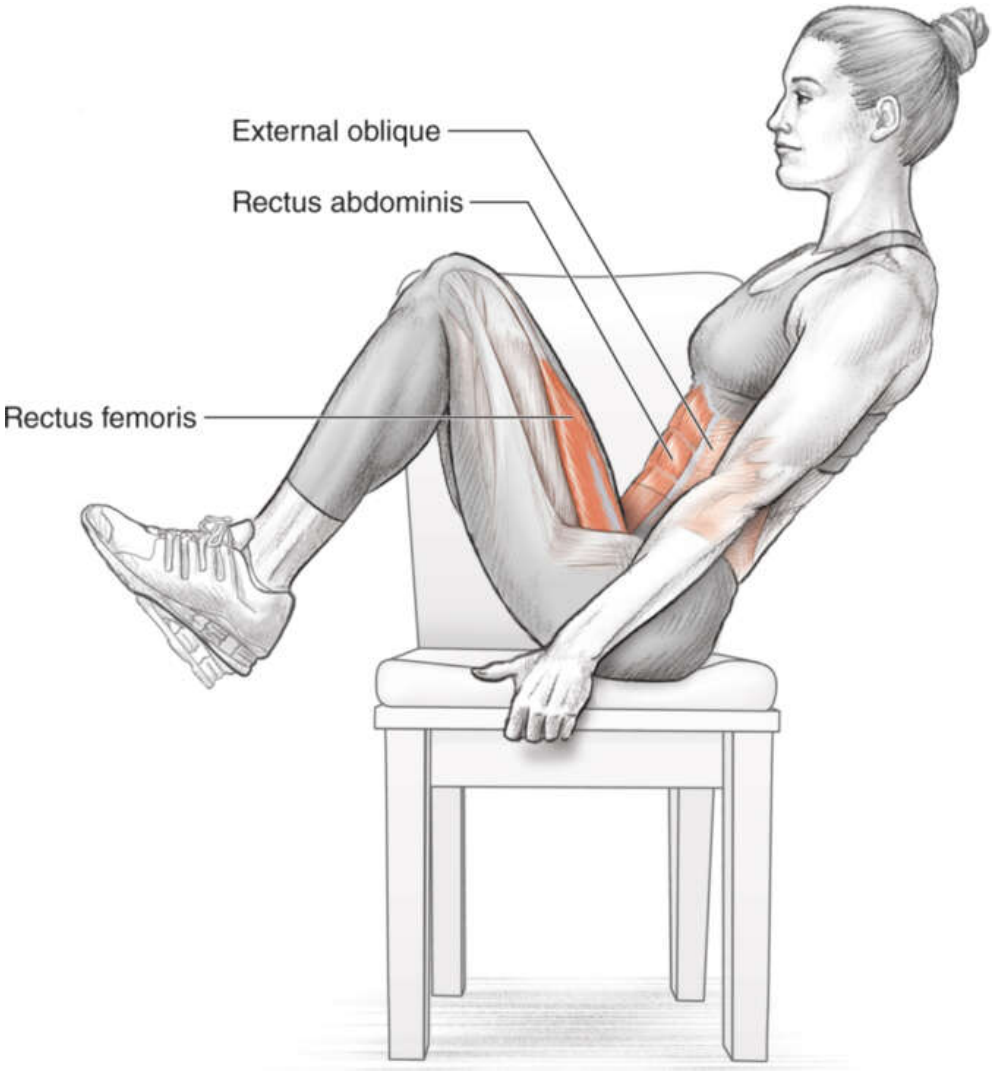
Primary: Lower rectus abdominis, psoas major, rectus femoris

Secondary: Upper rectus abdominis, internal oblique, external oblique

EXERCISE NOTES

The dead bug challenges your core stability as you move your limbs contralaterally. Pull in your abs and maintain an isometric contraction to prevent your spine from going into hyperextension. You can scale the difficulty by how much you raise the arm and leg.

SEATED KNEE-UP



EXECUTION

1. While seated, lean back and grab the seat of the chair, keeping your feet on the floor, your chest up, and your head and neck in neutral position.
2. Keeping your knees bent, simultaneously move your trunk forward and your legs upward so your trunk and thighs move toward each other.
3. Lower your torso and feet to the starting position.

MUSCLES INVOLVED

Primary: Rectus abdominis, psoas, rectus femoris

Secondary: Internal oblique, external oblique

EXERCISE NOTES

Strong hip flexor muscles power the legs upward while running. While the rectus femoris is more active in lower ranges of hip flexion, as the hips rise, the psoas become more important. The seated knee-up strengthens the abdominals and hip flexors together to help produce a strong

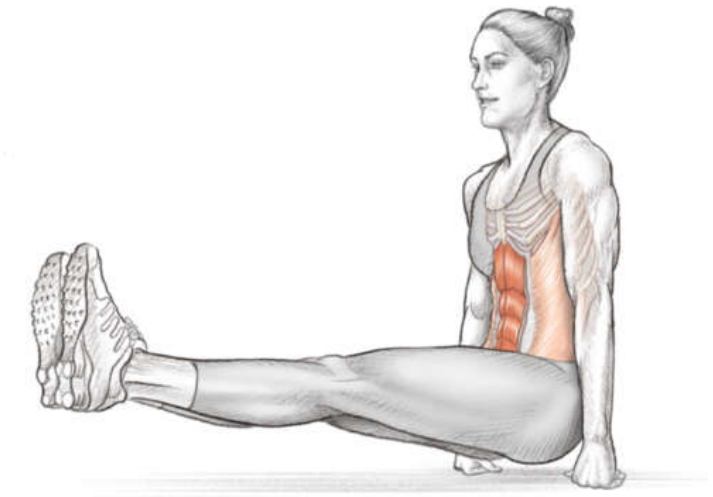
anterior chain. Maintain good posture throughout this movement by keeping your chest tall and your head and neck in a neutral position.

VARIATIONS

V-Up

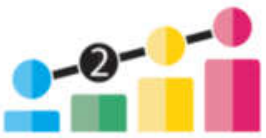
The V-up combines a reverse crunch and a sit-up into one, making it an advanced exercise for the abdominals and hip flexors. Since the reverse crunch primarily targets the lower abs and the standard sit-up primarily targets the upper abs, the V-up provides a complete stimulus. Aim to move through the lumbar spine, pulling your shoulders toward your knees. This range of motion can be scaled by bending your arms and legs, or the range of motion can be cut short. In an ideal V-up, you can touch your toes directly above your hips. On the downward phase, don't let your body flop to the ground. Instead, feel your abs stretch out as you lower your legs and torso until they're both flat against the ground.

L-Sit



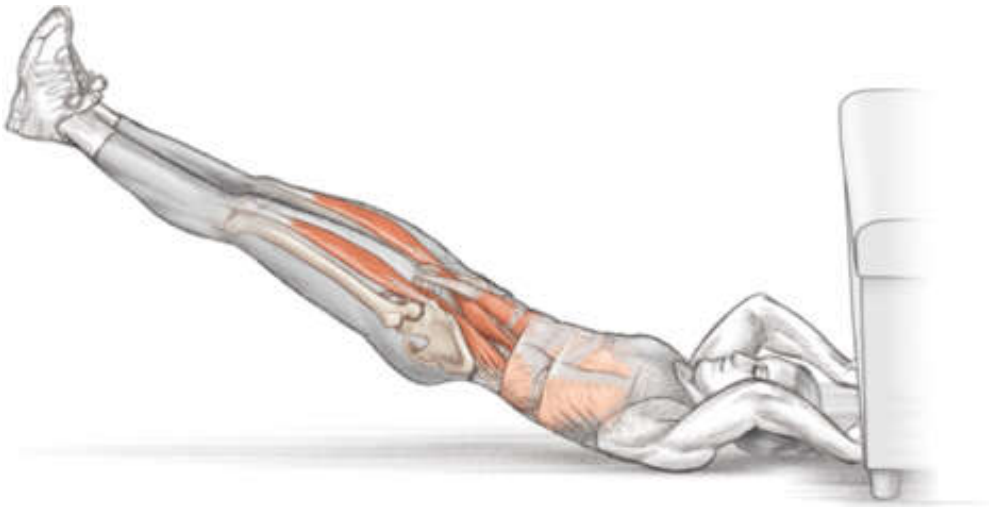
The L-sit is a challenging variation that involves holding an isometric, 90-degree, hips-flexed position while the entire body hovers over the ground. This advanced variation can be attempted after you've gained sufficient core strength and hamstring flexibility through other exercises. If you have proportionally shorter arms, you can place two blocks next to you, and you can put your palms flat on the blocks.

Lying Straight-Leg Raise



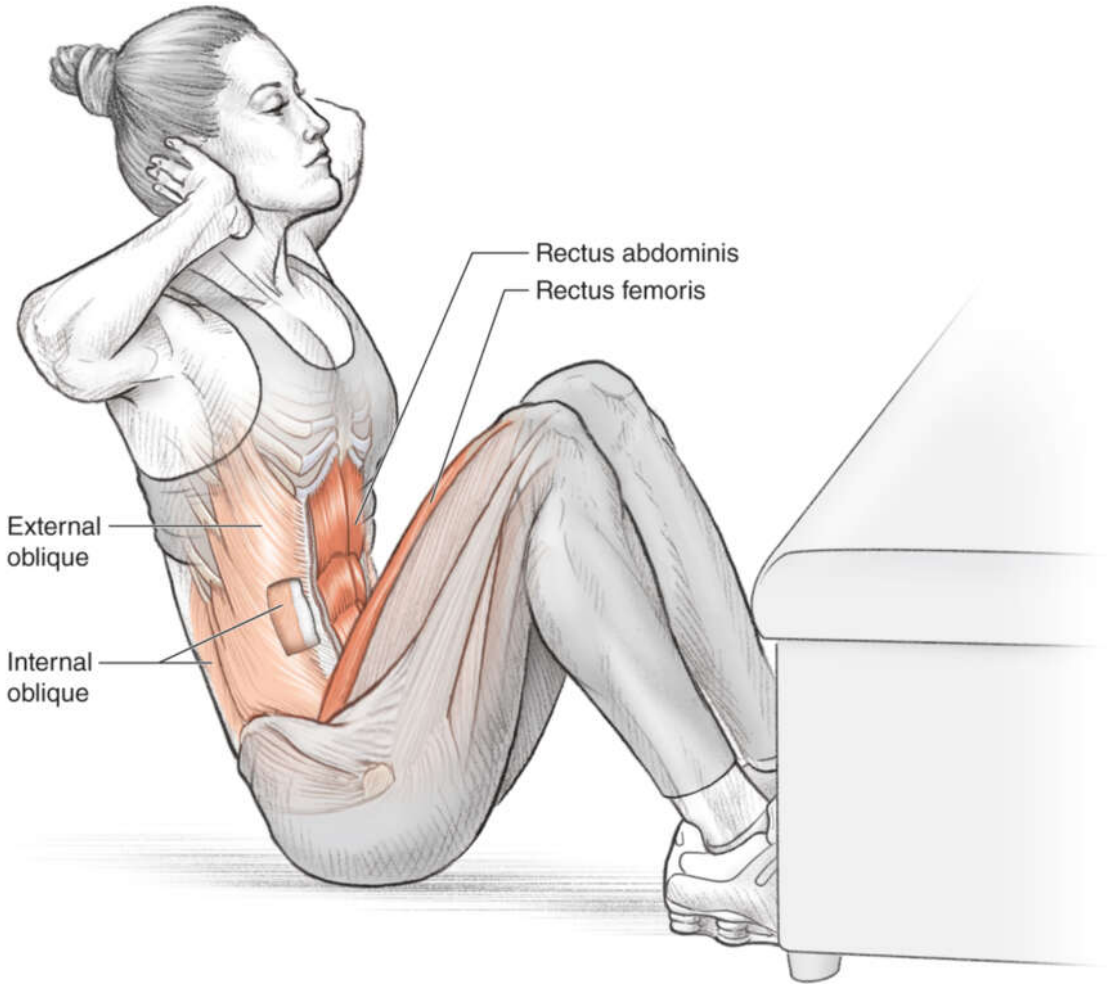
The lying straight-leg raise is an advanced variation of double-leg lowering movements. Most people perform the movement incorrectly. Keep good posture during this movement and lower your legs slowly and under control.

Dragon Flag



The dragon flag is a highly advanced variation. Make sure you’re able to perform simpler movements before attempting this movement. Lie supine and grab an object behind you, such as a pole or the bottom of a stable chair. Rotate your entire body around your upper shoulders, keeping your body in a straight line and maintaining good posture and core contraction.

BENT-KNEE SIT-UP



EXECUTION

1. Lie supine with your hips bent 45 degrees and your knees bent 90 degrees.
2. With your hands at the ears, flex your hips and upper back while moving only slightly in the lumbar spine.
3. Return to the starting position.

MUSCLES INVOLVED

Primary: Rectus abdominis, psoas, rectus femoris

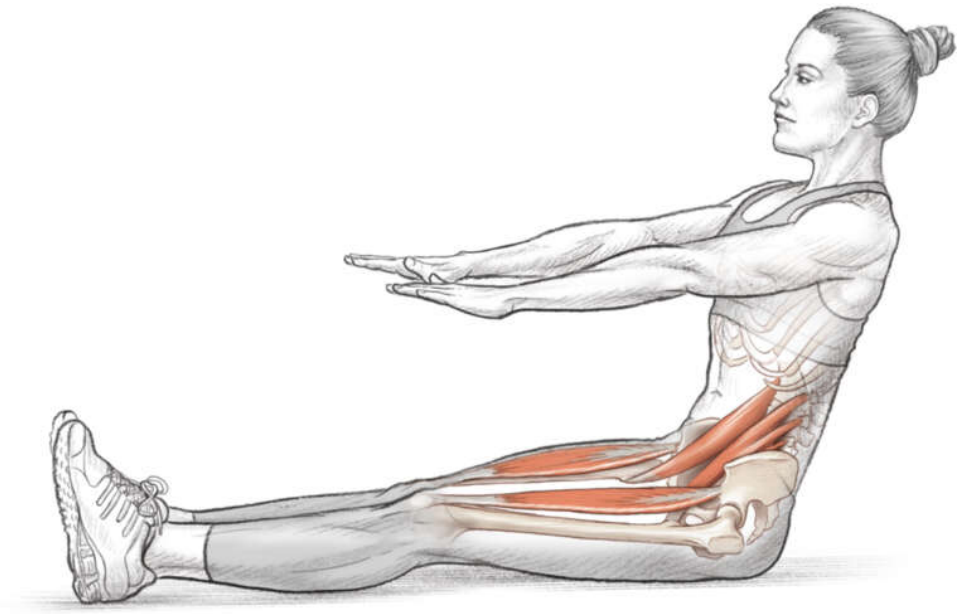
Secondary: Internal oblique, external oblique

EXERCISE NOTES

The bent-knee sit-up is a classic core exercise, but many people do more harm than good with this movement by flexing too much at the lumbar spine. Maintain proper lumbar posture throughout the movement by bending at your hips and upper back and limiting the range of motion in your low back. You can hook your feet under a sofa or something heavy to allow more torque production at the hips. Perform the movement under control and accentuate the negative portion (lowering component) of the exercise rather than cranking out 100 repetitions quickly.

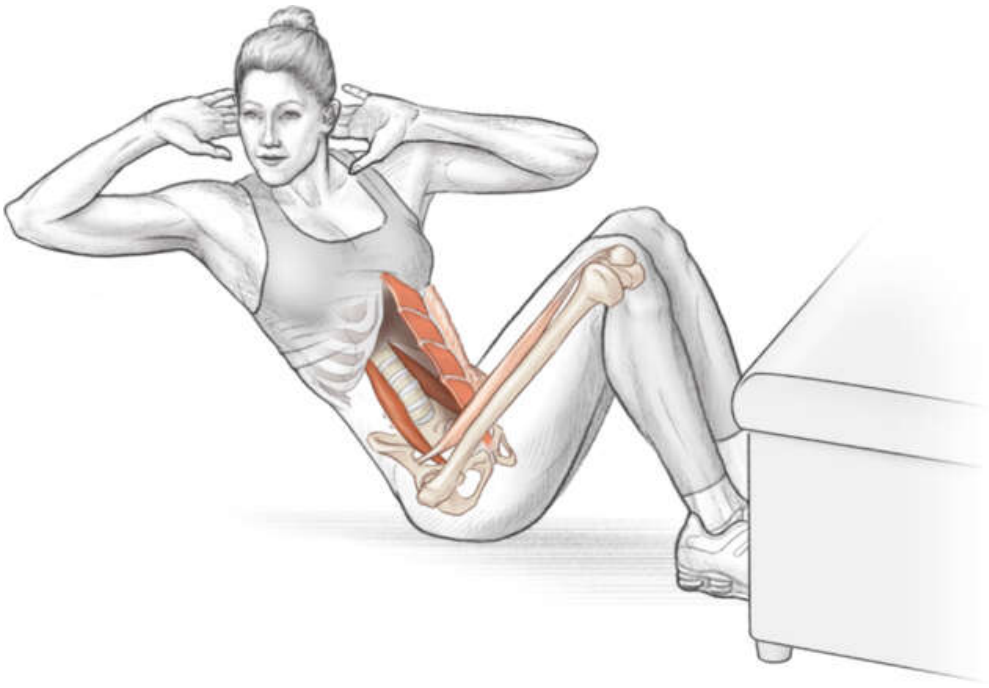
VARIATIONS

Straight-Leg Sit-Up



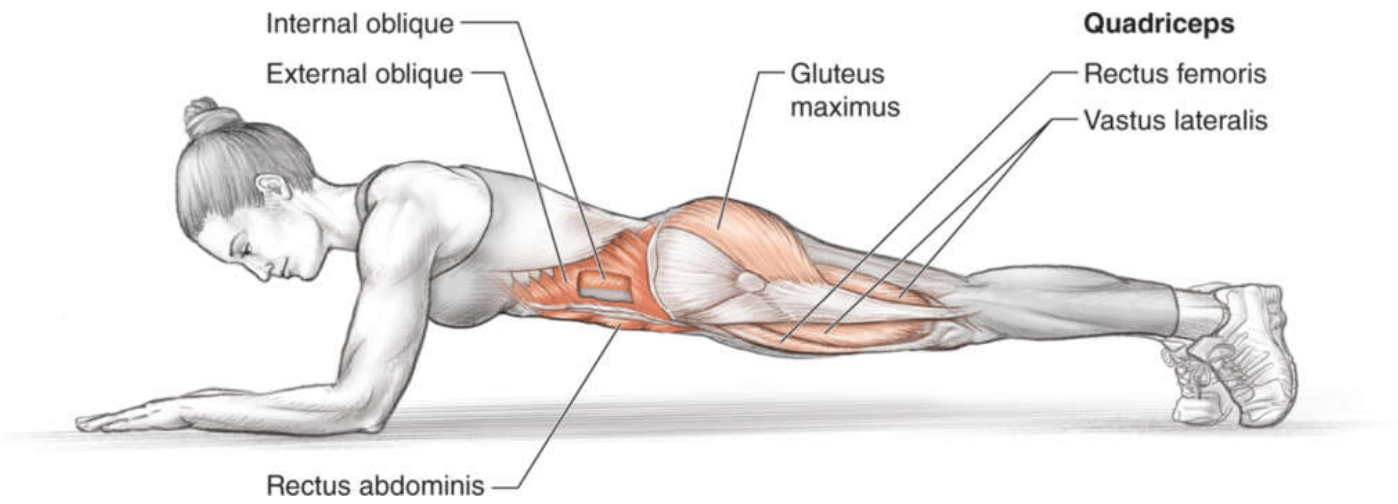
The straight-leg sit-up is a variation of the sit-up and requires hamstring flexibility. Use your hip flexors to pull your body up while keeping your chest tall to prevent excessive rounding of your lower back.

Twisting Sit-Up



The twisting sit-up is another classic movement, but just like the other sit-up variations, make sure you're performing the exercise correctly. As you rise, keep your chest up to prevent excessive rounding. Don't overrotate. Bring the opposite elbow toward your knee at the top of the movement.

FRONT PLANK



EXECUTION

1. Form a pillar or bridge by supporting your body in a prone position with only your toes and forearms touching the ground.
2. Keeping your body in a straight line with your elbows under your shoulders, your hands flat on the floor or clasped, and your head looking down, forcefully contract your quads and glutes.
3. Hold for time. Depending on your fitness level, hold the position for 30 seconds to 3 minutes.

MUSCLES INVOLVED

Primary: Rectus abdominis, internal oblique, external oblique

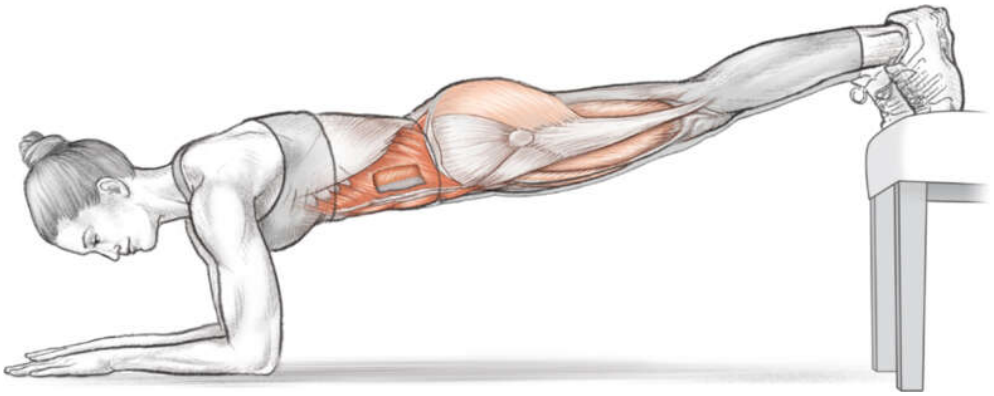
Secondary: Gluteus maximus, quadriceps (rectus femoris, vastus lateralis, vastus medialis, vastus intermedius)

EXERCISE NOTES

The front plank is the most basic core-stability exercise. Unfortunately, it is often performed improperly. Contract your quads to straighten your knees. Keep your body in a straight line. Many people either allow the hips to sag or rise up into an upside-down V position. Look down to avoid hyperextending your neck. Finally, squeeze the glutes to posteriorly rotate your pelvis. This makes the movement much more challenging for your glutes, abdominals, and obliques. When performed this way, the movement is challenging. It's not uncommon to experience shaking and trembling after only 15 seconds.

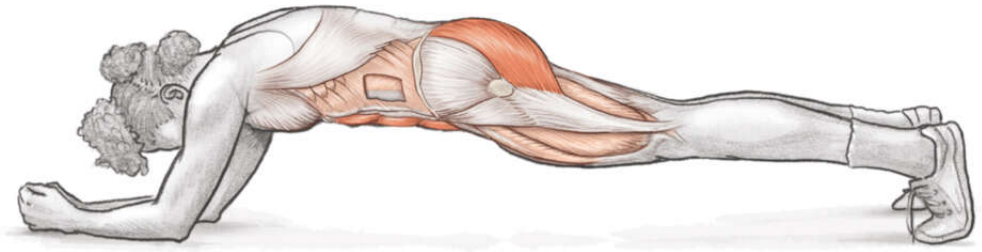
VARIATIONS

Feet-Elevated Two-Point Plank



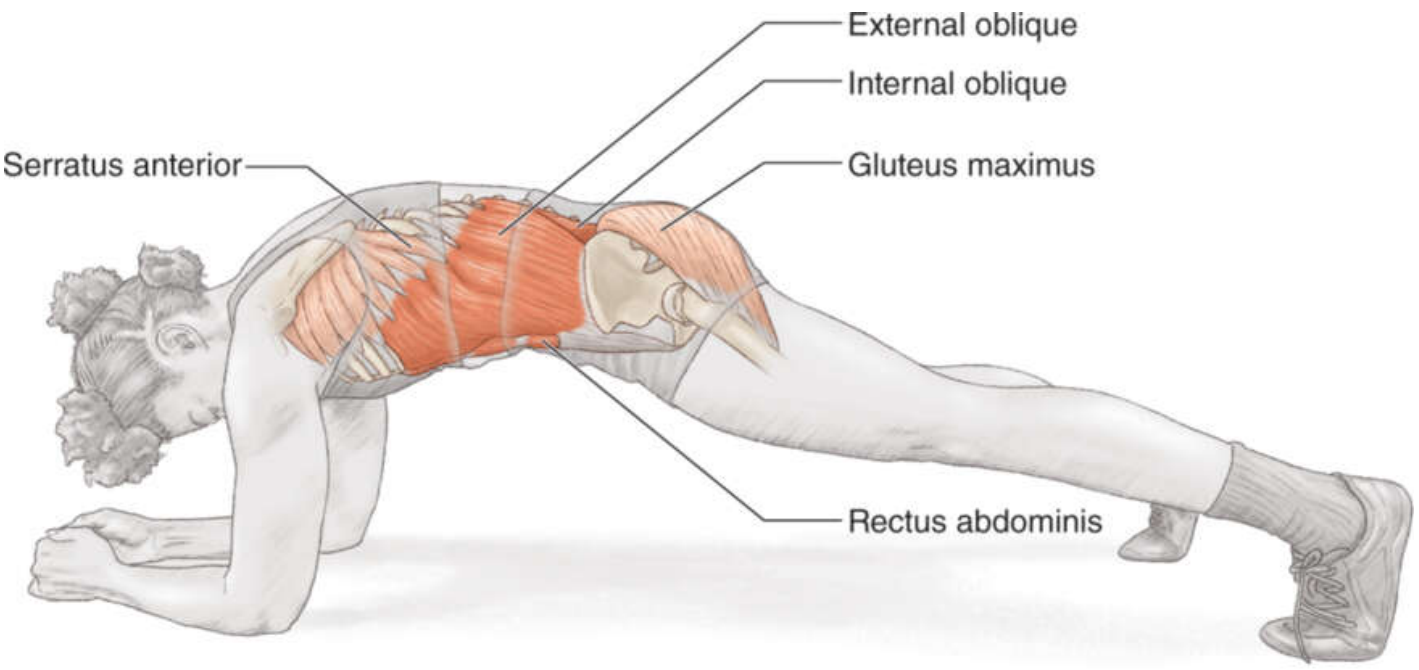
It is possible to make the static hold more challenging by elevating your feet onto a weight bench, sturdy chair, or small table. Just don't have your feet elevated too high.

Long-Lever Posterior Pelvic Tilt Plank



The long-lever posterior pelvic tilt plank is an advanced variation of the standard plank that modifies the lever arm to increase difficulty. Set up in the standard plank position, then shift your elbows forward by a few inches or centimeters. Dig your elbows into the ground and apply isometric shoulder extension pressure, driving your elbows toward your hips without letting them move. While doing this, contract your glutes and posteriorly tilt your pelvis, creating a small amount of flexion at the base of your lumbar spine. The further in front your elbows are positioned away from your shoulders, the longer the lever will be, thereby increasing the difficulty.

RKC PLANK



EXECUTION

1. Get into standard plank position on your forearms and toes.
2. Squeeze your glutes as hard as possible to posteriorly tilt (tuck under) the pelvis. Hold the pelvic tuck throughout the duration of the set.
3. Try to drive your elbows to your feet and your feet to your elbows as if trying to pike upward, but keep your body in good alignment.

MUSCLES INVOLVED

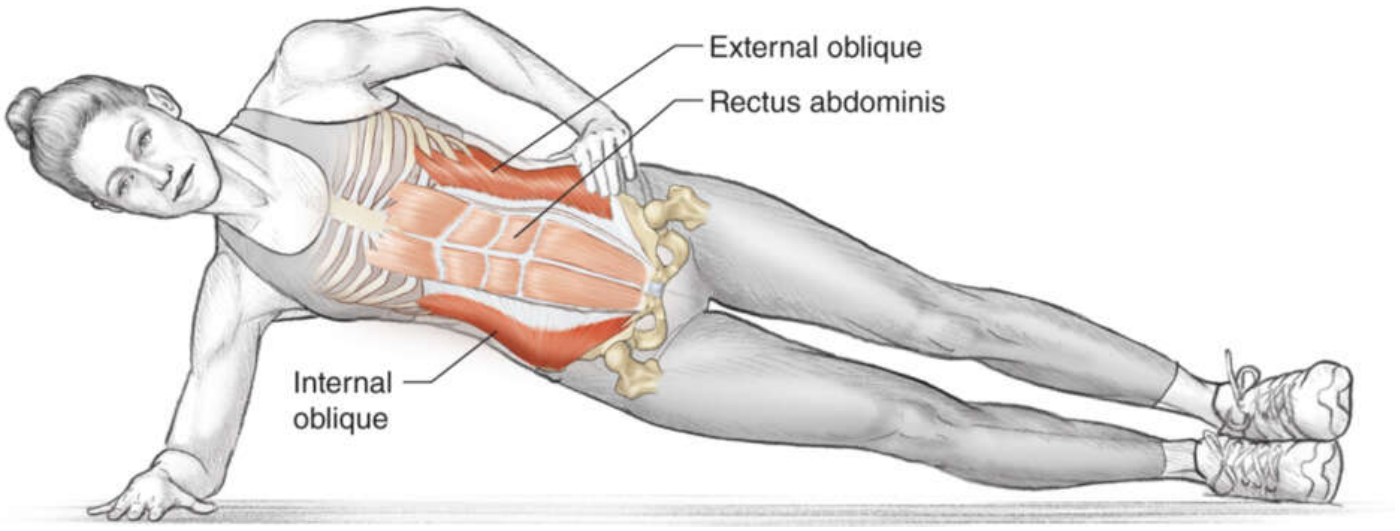
Primary: Rectus abdominis, external oblique, internal oblique

Secondary: Gluteus maximus, serratus anterior

EXERCISE NOTES

The RKC plank is an intermediate plank variation that requires considerable muscle skill and endurance. Many people lack the abdominal and gluteal motor skills and stamina to produce a pelvic tuck (posterior tilt) and hold it for time. It is important to be able to dissociate the pelvis from the spine and to possess strong glutes because they help prevent excessive anterior (forward) tilt or overarching. This variation builds gluteal endurance as well as lower abdominal and oblique endurance. The key is to hold the pelvic tilt while driving your elbows toward your feet and your feet toward the elbows, making the isohold considerably more challenging. It takes time to master this movement, so make sure you're proficient in simpler plank variations before attempting the RKC plank.

SIDE PLANK



EXECUTION

1. Form a side pillar or bridge by supporting your body in a side-lying position with just one foot and one forearm touching the ground. Stack your legs and place the hand of your upper arm on your hip.
2. Keep your body in a straight line from head to foot with a neutral head and neck position. Squeeze your glutes and keep the forearm of the lower arm pointed straight ahead.
3. Hold for time. Depending on your strength level, hold for 15 to 60 seconds.

MUSCLES INVOLVED

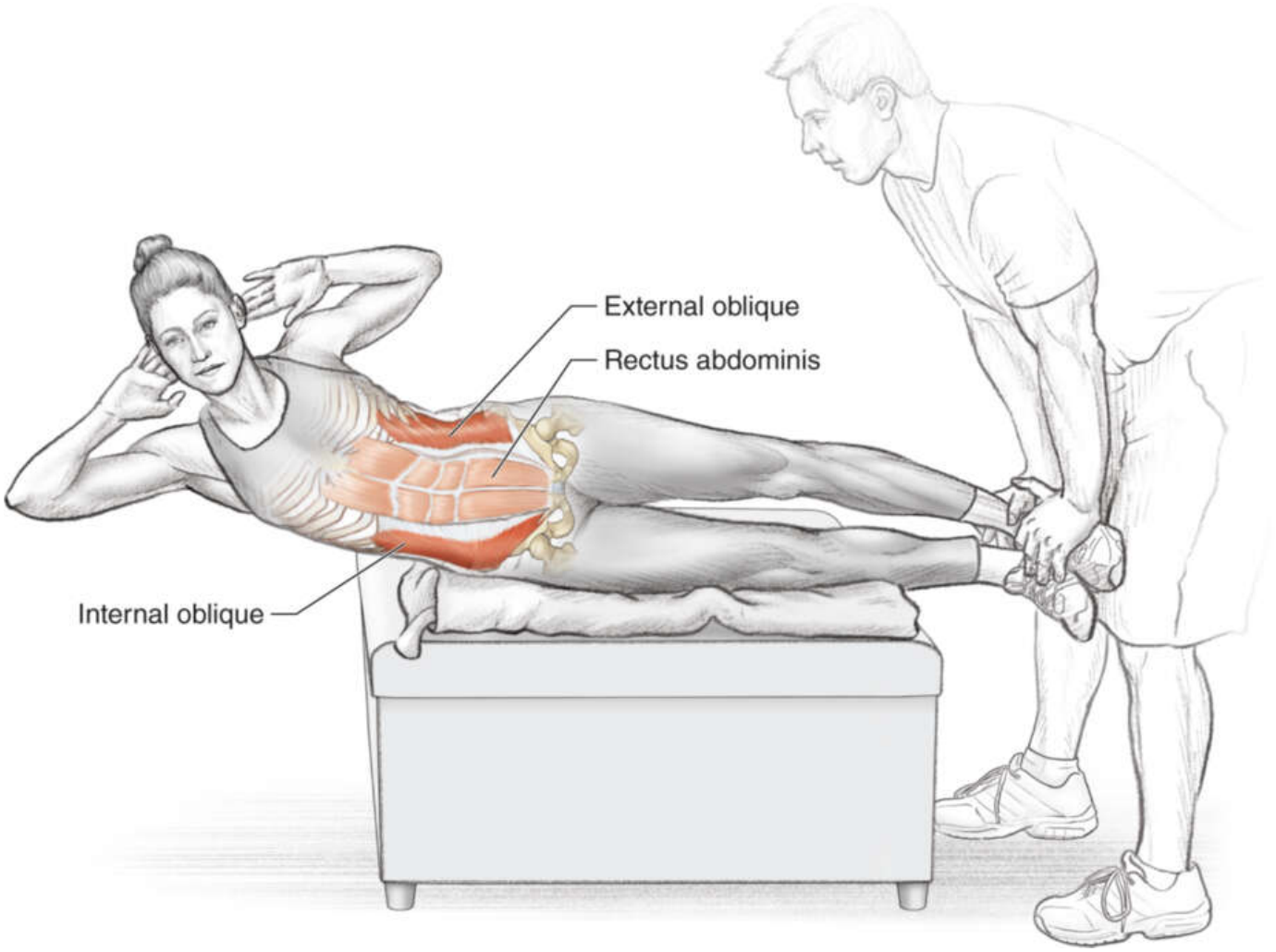
Primary: External oblique, internal oblique, gluteus medius, quadratus lumborum

Secondary: Rectus abdominis, erector spinae (spinalis, longissimus, iliocostalis), multifidus

EXERCISE NOTES

The side plank is a functional exercise that trains the obliques and gluteus medius isometrically, which is akin to their stabilizing role during many dynamic activities. Keep your entire body in neutral position and keep your core and glutes tight. Many people unknowingly lean forward or backward, set up in a twisted position, or bend at the hips when performing this movement. This is a core-stability exercise, so you need to resist motion and keep your body in a long, athletic position.

PARTNER-ASSISTED OBLIQUE RAISE



EXECUTION

1. Begin with a partner holding your feet; your lower body draped over a weight bench, small table, or loveseat in a side-lying position; and your upper body suspended in the air with your hands at your ears and legs straight.
2. Lower your torso toward the floor, limiting the bending in your lower spine while receiving a stretch in your upper hips. Avoid rotating during the movement.
3. Raise your torso with a strong contraction in your gluteus medius and obliques.

MUSCLES INVOLVED

Primary: External oblique, internal oblique, gluteus medius, quadratus lumborum

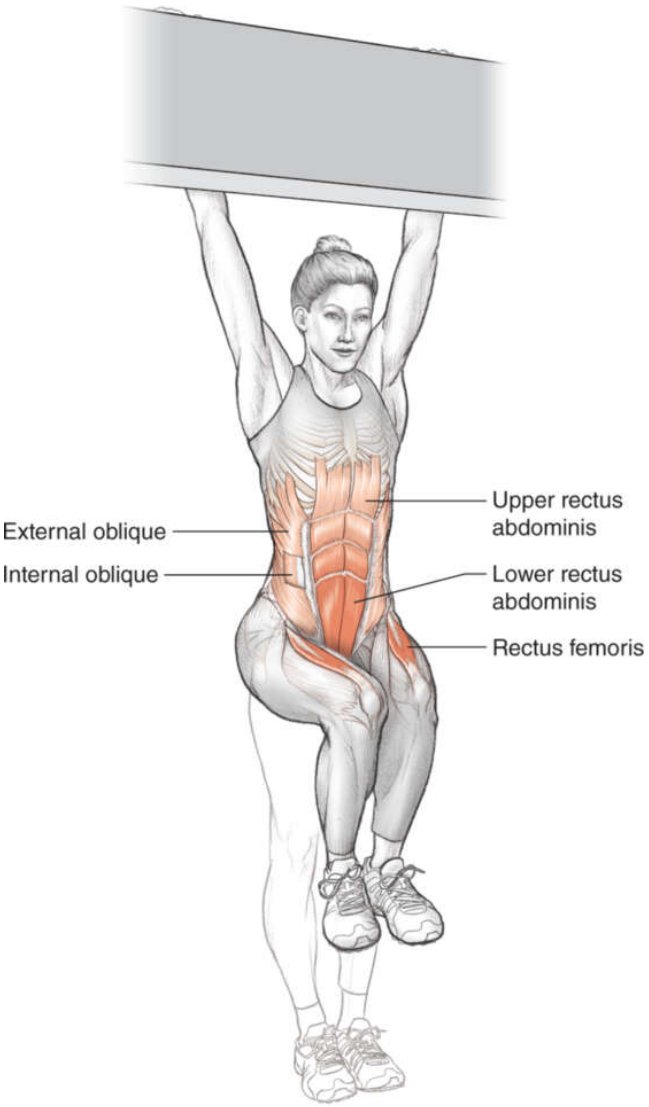
Secondary: Rectus abdominis, erector spinae (spinalis, longissimus, iliocostalis), multifidus

EXERCISE NOTES

The partner-assisted oblique raise is a challenging movement that requires a partner. Make sure the partner is well positioned and able to hold your lower body in position and keep your feet stationary. Make this a hips-and-core movement rather than just bending at the low back. The

motion is completely lateral and medial; there should be no twisting or bending forward at your hips during the movement. Cross your arms in front of your body, and when that becomes easy, place your hands overhead in a prisoner position (hands behind the head and elbows out) to make the movement more challenging.

HANGING LEG RAISE WITH BENT KNEES



EXECUTION

1. Hang from a chin-up bar or sturdy rafter with your palms forward and your hands about shoulder-width apart, keeping your legs straight.
2. Raise your legs by flexing at your hips until your hips and knees are at 90-degree angles.
3. Lower your legs to the starting position.

MUSCLES INVOLVED

Primary: Psoas, rectus femoris, lower rectus abdominis

Secondary: Upper rectus abdominis, internal oblique, external oblique, anterior and posterior forearm muscles (such as the flexor carpi radialis and palmaris longus), lower trapezius

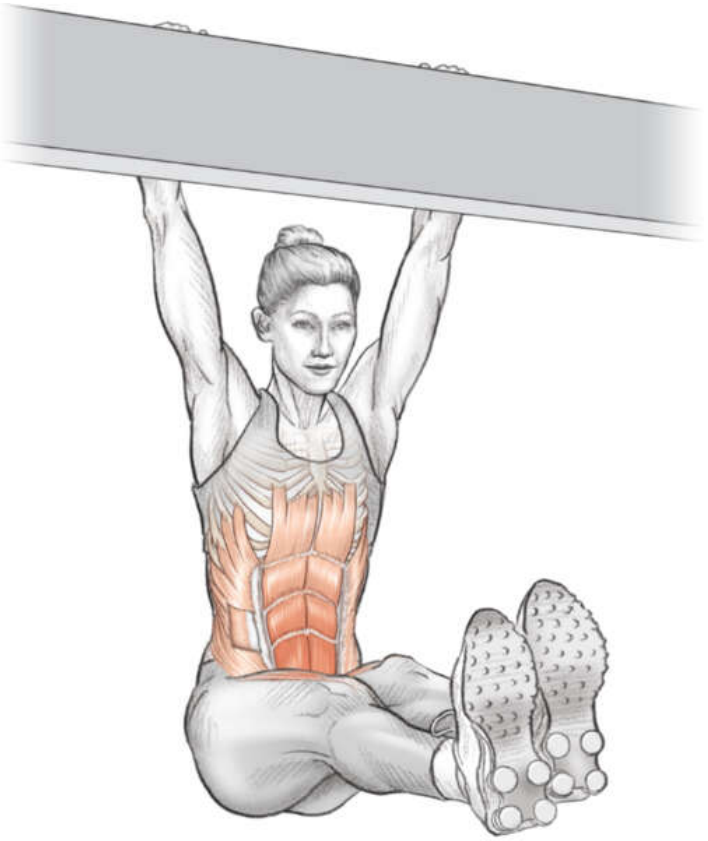
EXERCISE NOTES

The hanging leg raise with bent knees is a great hip flexor exercise that should help you reposition

your legs faster when sprinting. Keep your lumbar spine in a neutral position during this movement by moving mostly in your hips and upper back and not so much in your lower back. All the motion occurs at your hips. Lift your knees just until the upper thighs are parallel to the floor and then lower your legs.

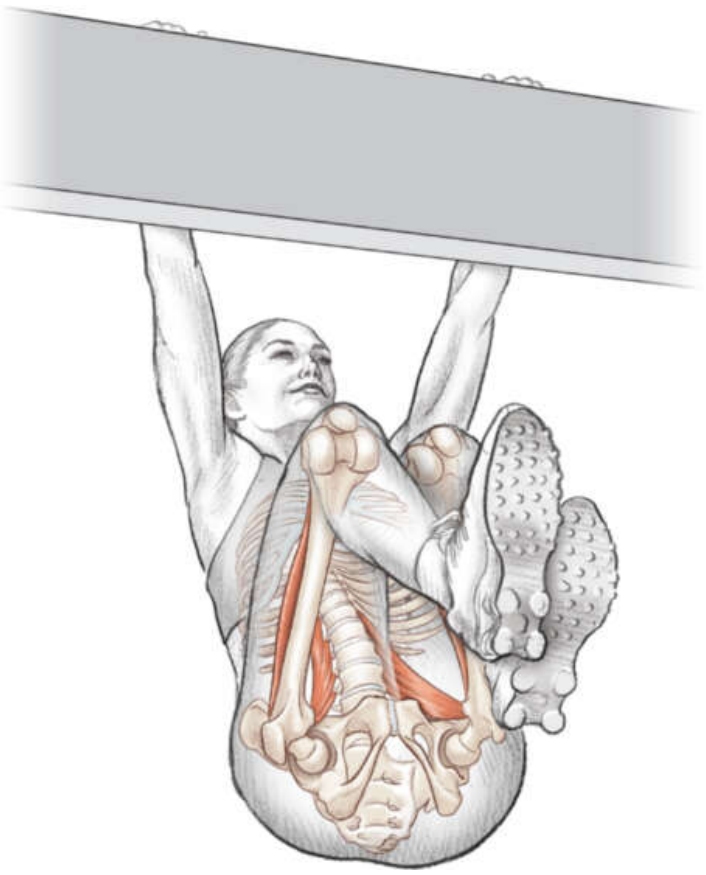
VARIATIONS

Straight-Leg Hanging Leg Raise



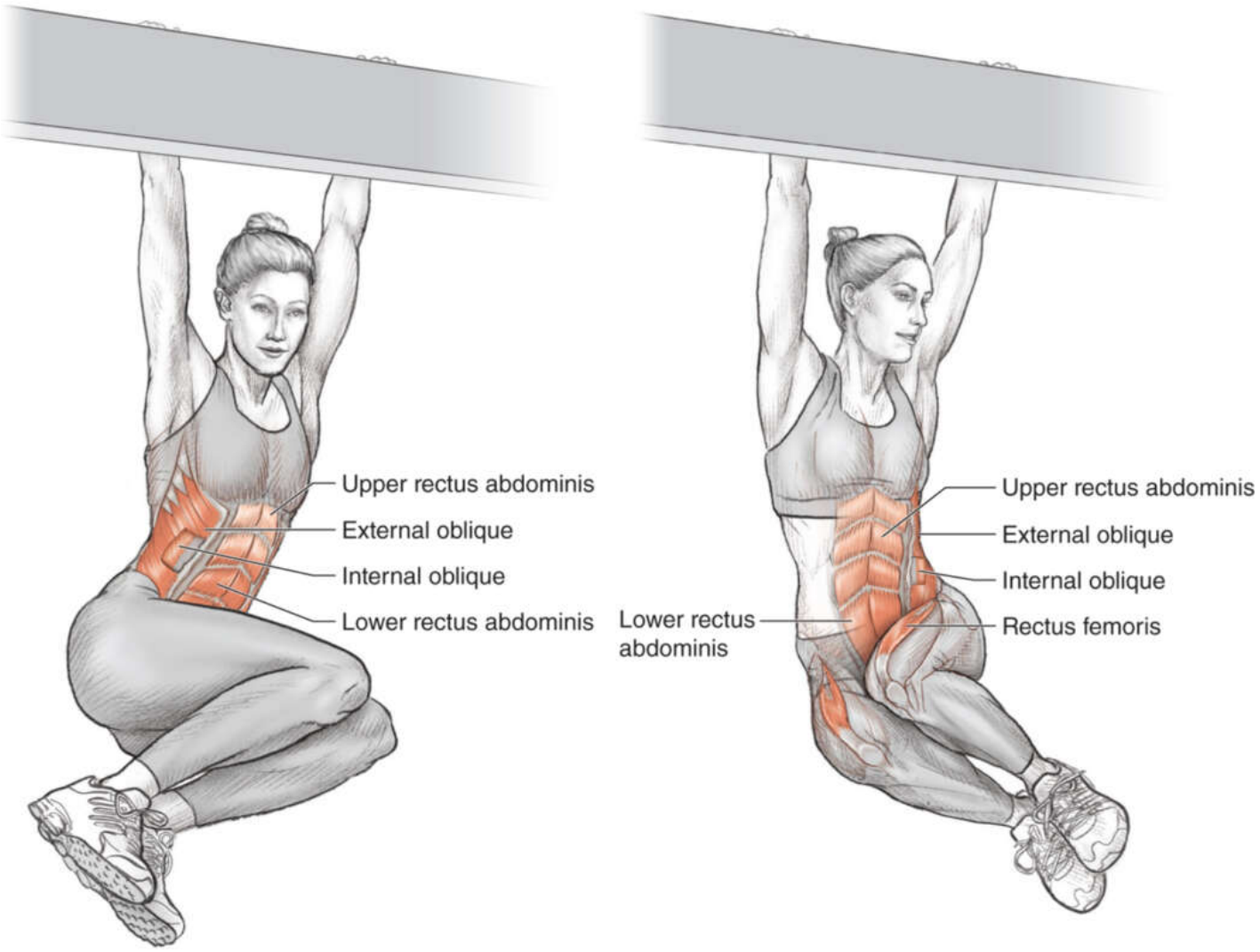
The straight-leg hanging leg raise is an advanced variation that requires excellent hip flexor strength and hamstring flexibility. The same rules apply: Keep your lumbar spine stable while moving solely at your hips.

Hanging Leg Raise With Reverse Crunch



The hanging leg raise with reverse crunch combines hip flexion, posterior pelvic tilt, and lumbar flexion to work your hip flexors and abdominals. Raise your knees. When you reach 90 degrees, keep raising by titling your pelvis back and flexing your spine a bit, which will allow you to bring your knees all the way up toward your shoulders.

OBLIQUE HANGING LEG RAISE



EXECUTION

1. Hang from a chin-up bar or sturdy rafter with your knees bent and hands shoulder-width apart, palms facing forward. Raise your knees by flexing at your hips. At the same time, pull your knees to one side by laterally flexing your spine.
2. Raise your knees to slightly over 90 degrees relative to the ground. Lower your legs to the starting position, then alternate to the other side.

MUSCLES INVOLVED

Primary: Internal oblique, external oblique, psoas, rectus femoris, lower rectus abdominis

Secondary: Upper rectus abdominis, anterior and posterior forearm muscles (such as the flexor carpi radialis and palmaris longus), lower trapezius

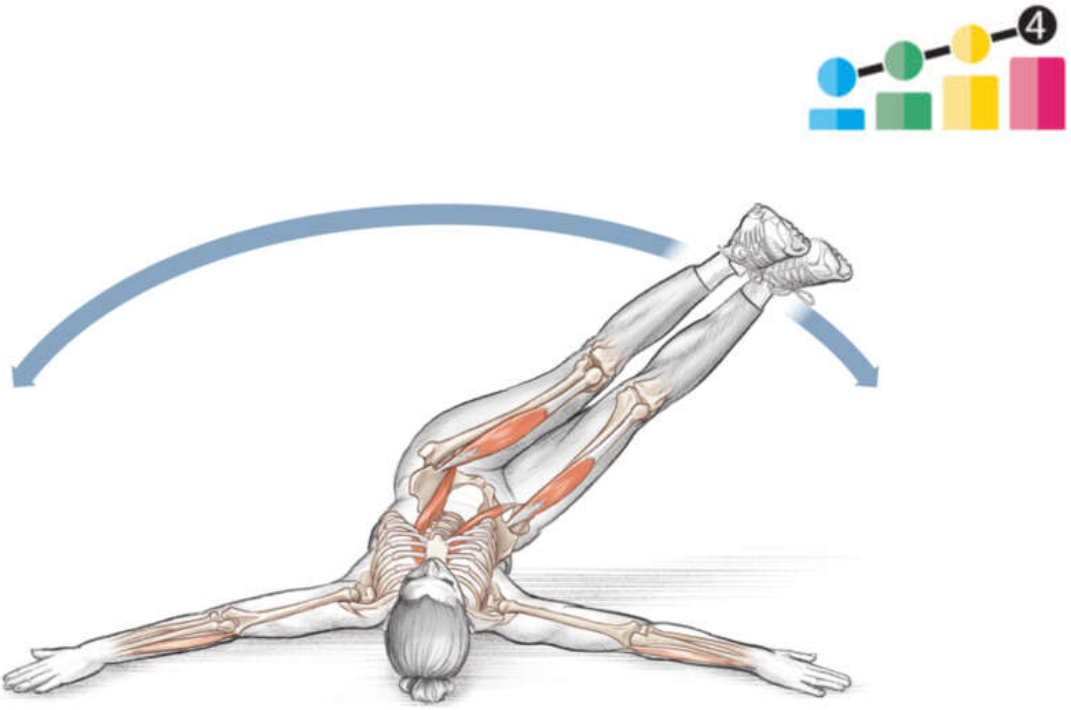
EXERCISE NOTES

The oblique hanging leg raise is a challenging core exercise that works the entire anterior core with special emphasis on the obliques. Make sure you're proficient in side crunches and other simpler

oblique movements before attempting this exercise. Control the motion and ensure that it is smooth.

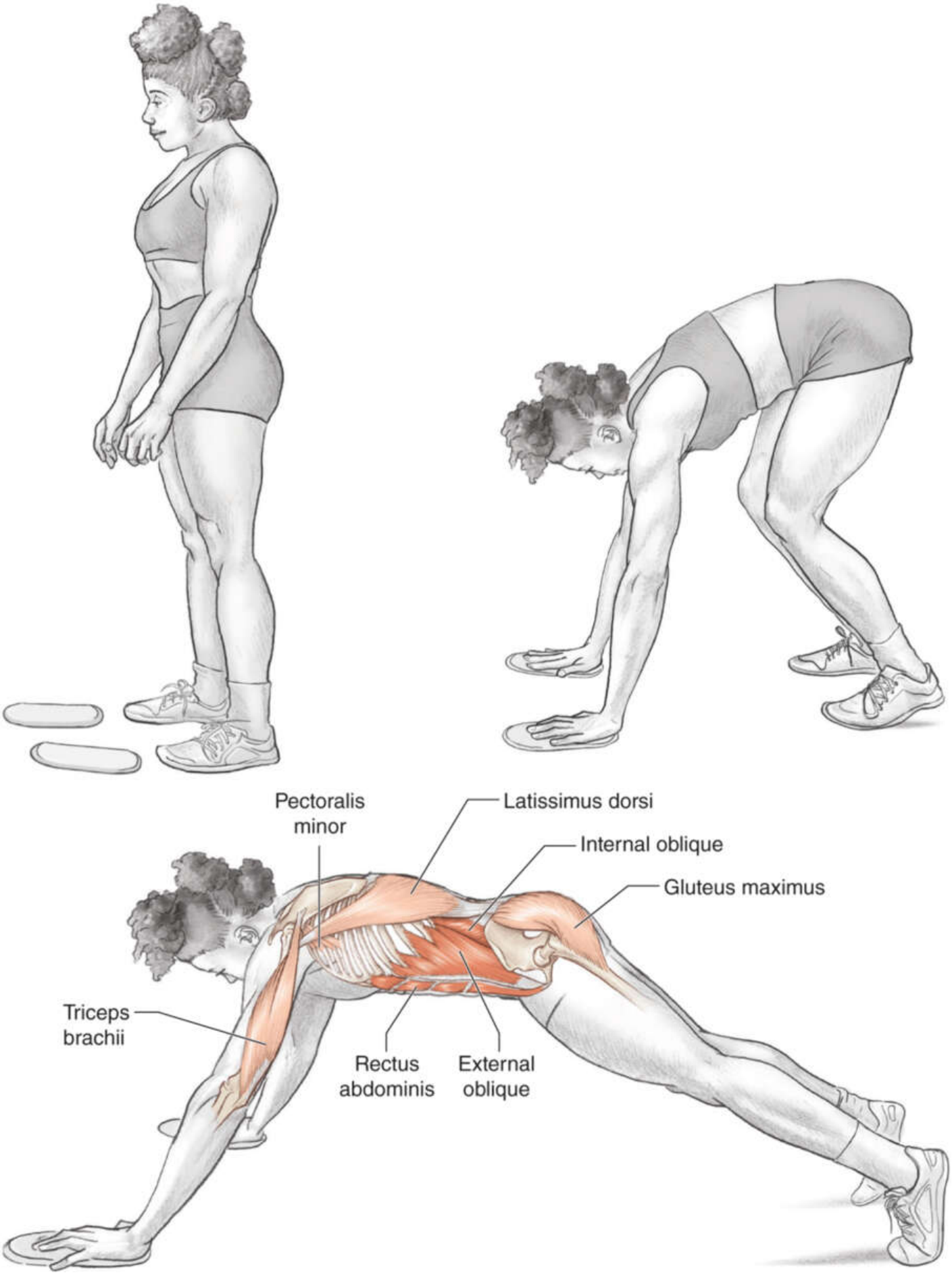
VARIATION

Windshield Wiper



The windshield wiper is an extremely advanced exercise. Don’t try it until you have mastered more basic core movement patterns. To perform this movement, raise your legs toward your shoulders and then rotate your legs from side to side, keeping your core tight and twisting mostly with your upper back, not your lower back. Control the motion and limit the rotational range of motion to spare your spine.

STANDING ROLLOUT



EXECUTION

1. From a standing position, reach down and place your hands on paper plates. You also can use commercially available sliding exercise disks or, on a slick floor, two small hand

towels. Slide out until your body approaches parallel to the ground.

2. Reverse the movement to return to the standing position.

MUSCLES INVOLVED

Primary: Rectus abdominis, internal oblique, external oblique

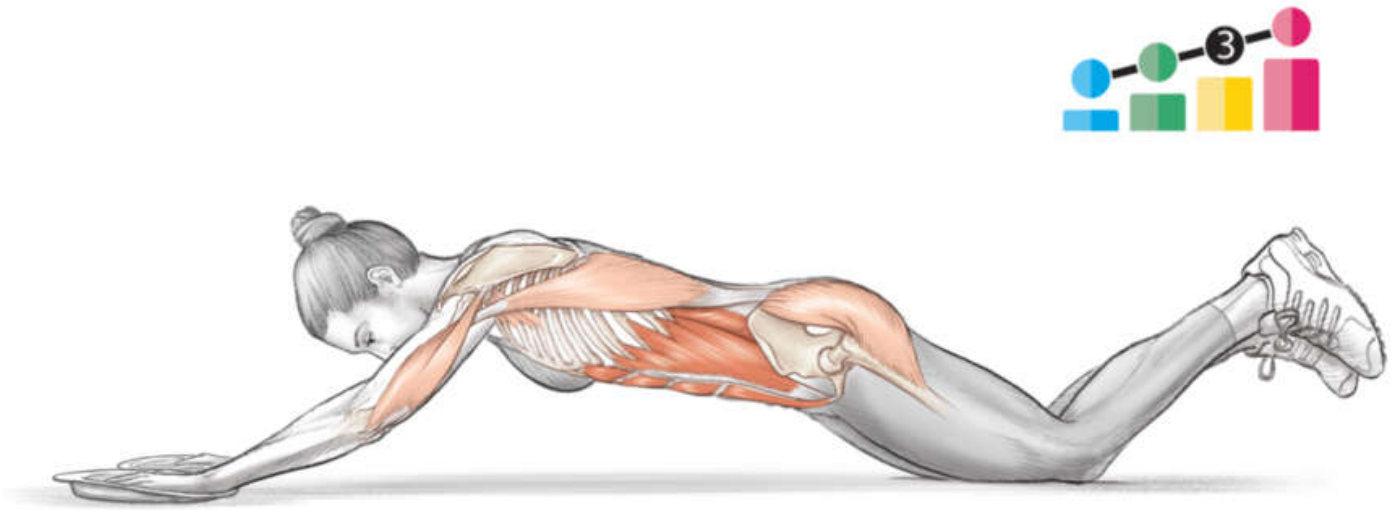
Secondary: Gluteus maximus, latissimus dorsi, triceps brachii, pectoralis minor

EXERCISE NOTES

The standing rollout is one of the most challenging core movements around. Before attempting the standing rollout, be sure you can perform the sliding rollout from your knees with good form. The movement of the standing rollout sounds much easier than it is. Break into the movement gradually by performing controlled negatives until you can perform the whole movement properly. Don't allow your hips to sag, your lower back to cave in, or your pelvis to anteriorly rotate. Keep your glutes contracted throughout the movement. If you do not have paper plates or other sliding devices, you can also walk your hands out with your palms flat on the ground.

VARIATION

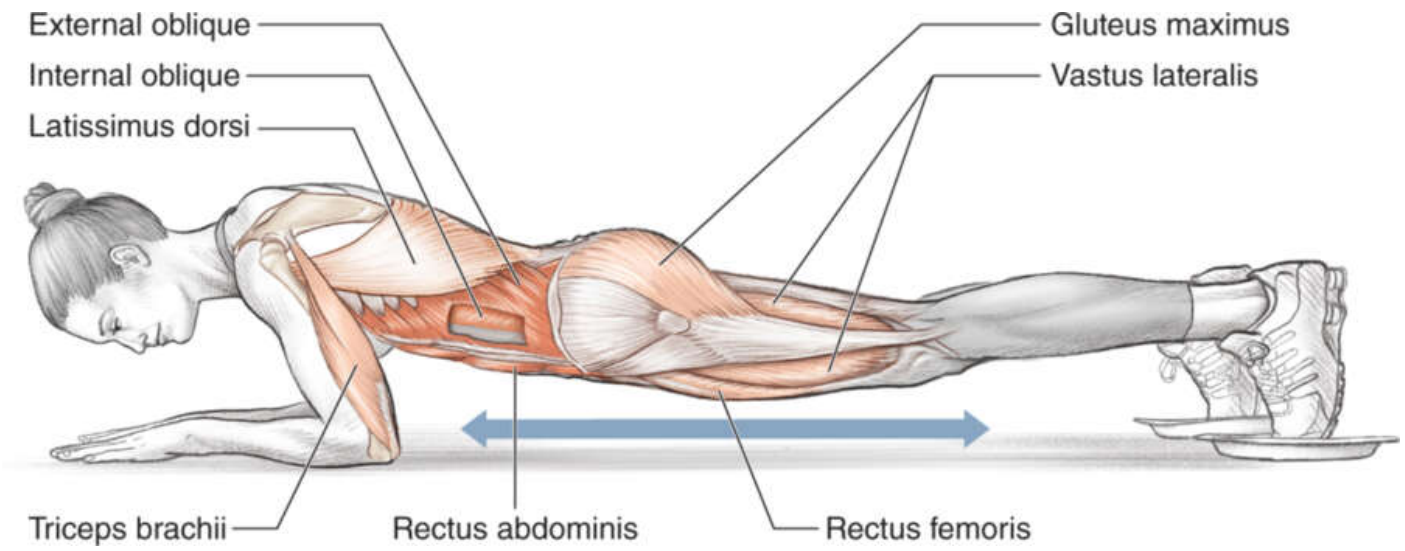
Sliding Rollout From Knees



The rollout is one of the best core-stability exercises. When first learning the motion, begin from a kneeling position. Assume a kneeling position with both hands on paper plates. You also can use commercially available sliding exercise disks or, on a slick floor, two small hand towels. Squeeze your glutes and keep your head and neck in a neutral position. Lower your body under control by extending your hips and moving your arms away from you until your body approaches the floor. Keep the glutes contracted forcefully. Rise back to the starting position.

If you use proper form and keep your glutes contracted, preventing the pelvis from rotating forward, your lower abdominals will receive even more of a workout, and you are likely to be sore for quite a while if you aren't accustomed to the movement. Break into this exercise gradually and make sure you keep your body in a straight line at the bottom of the movement. Many people sag at the hips or allow too much anterior pelvic tilt during the rollout exercise.

SLIDING BODY SAW



EXECUTION

1. Form a pillar by resting your body on the ground and propping yourself on your elbows and feet. Put your feet on paper plates. You also can use commercially available sliding exercise disks or, on a slick floor, two small hand towels.
2. Keep your glutes and quadriceps contracted and your head in a neutral position so your body forms a straight line.
3. Rock your body forward and backward through shoulder flexion and extension. Your feet will slide, with your forearms serving as a pivot point.

MUSCLES INVOLVED

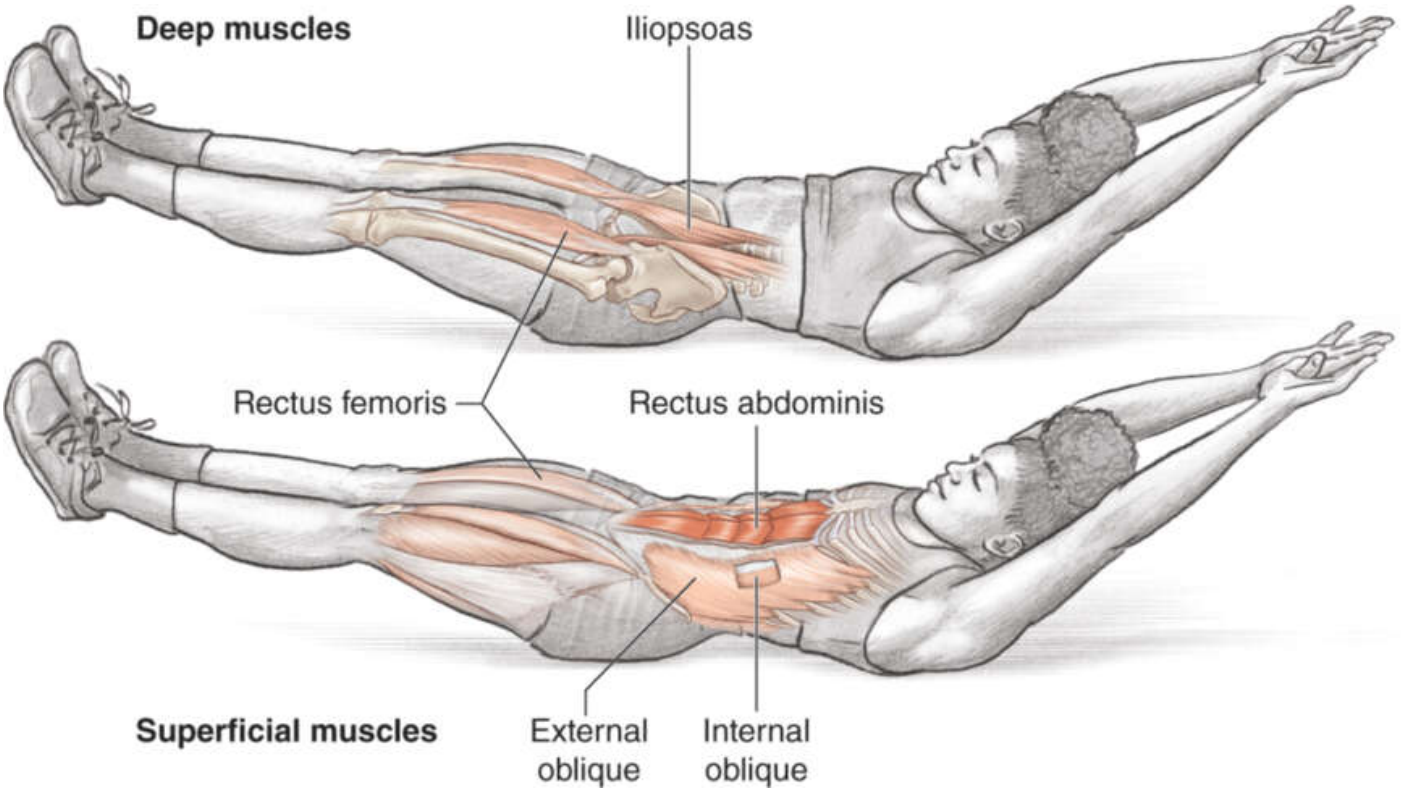
Primary: Rectus abdominis, internal oblique, external oblique

Secondary: Gluteus maximus, quadriceps (rectus femoris, vastus lateralis, vastus medialis, vastus intermedius), latissimus dorsi, triceps brachii

EXERCISE NOTES

The sliding body saw is a dynamic variation of the front plank. With your feet on paper plates or another sliding device and your body in a plank position, slide forward and backward to allow your body to pivot around the elbows. Make sure your hips don't sag and that you keep your glutes contracted maximally throughout the movement. Look down to prevent hyperextending your neck. This is a challenging core movement and requires a mastery of other core exercises such as the front plank.

HOLLOW BODY HOLD



EXECUTION

1. Lie supine on the ground.
2. Flex your lumbar spine and posteriorly tilt your pelvis, allowing your legs and upper torso to rise off the ground.
3. Maintain this position for 30 seconds.

MUSCLES INVOLVED

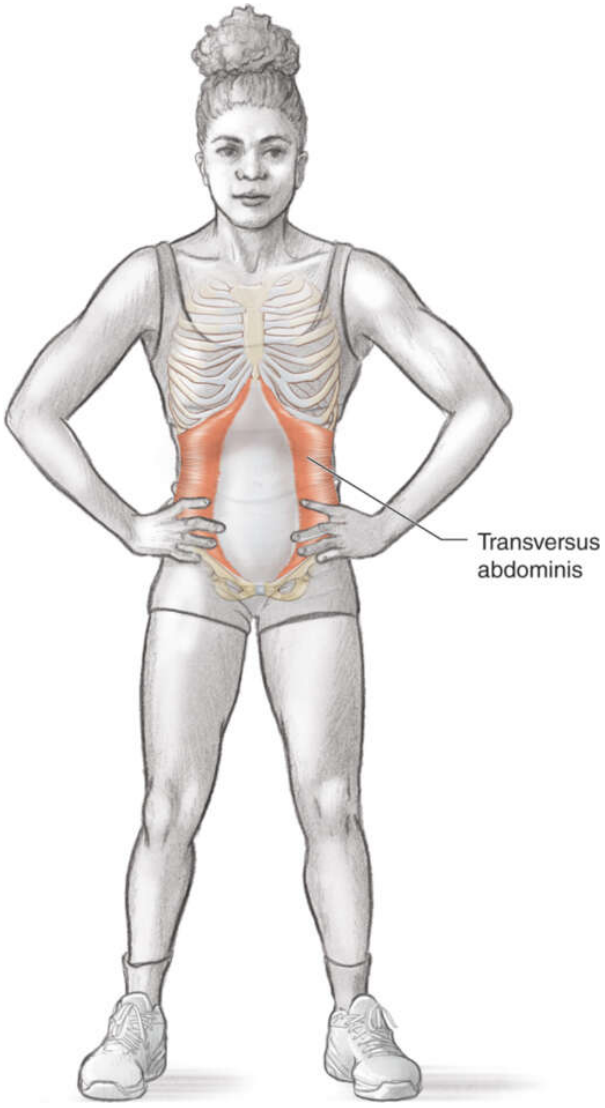
Primary: Rectus abdominis

Secondary: External oblique, internal oblique, iliopsoas, rectus femoris

EXERCISE NOTES

The hollow body hold is an isometric variant of the V-up. You can scale the difficulty by maintaining the isometric contraction where you're comfortably able to hold it for 30 seconds. This is a very challenging exercise, so it's likely your arms and legs will be closer to the ground.

AB VACUUM



EXECUTION

1. Stand upright and place your hands on your hips.
2. Exhale 70 percent of your breath.
3. Retract your abdomen, pulling it in and bringing your belly button toward your spine.
4. Once you've pulled in as much as you can, contract your abs while maintaining an upright posture.

MUSCLES INVOLVED

Primary: Transversus abdominis

EXERCISE NOTES

The ab vacuum is a difficult exercise for the transversus abdominis. The goal isn't to suck in to make your midsection appear smaller; rather, it's to slowly and deliberately contract the abs as you pull them in. Hold the fully contracted position for 5 to 10 seconds and slowly let your breath out as

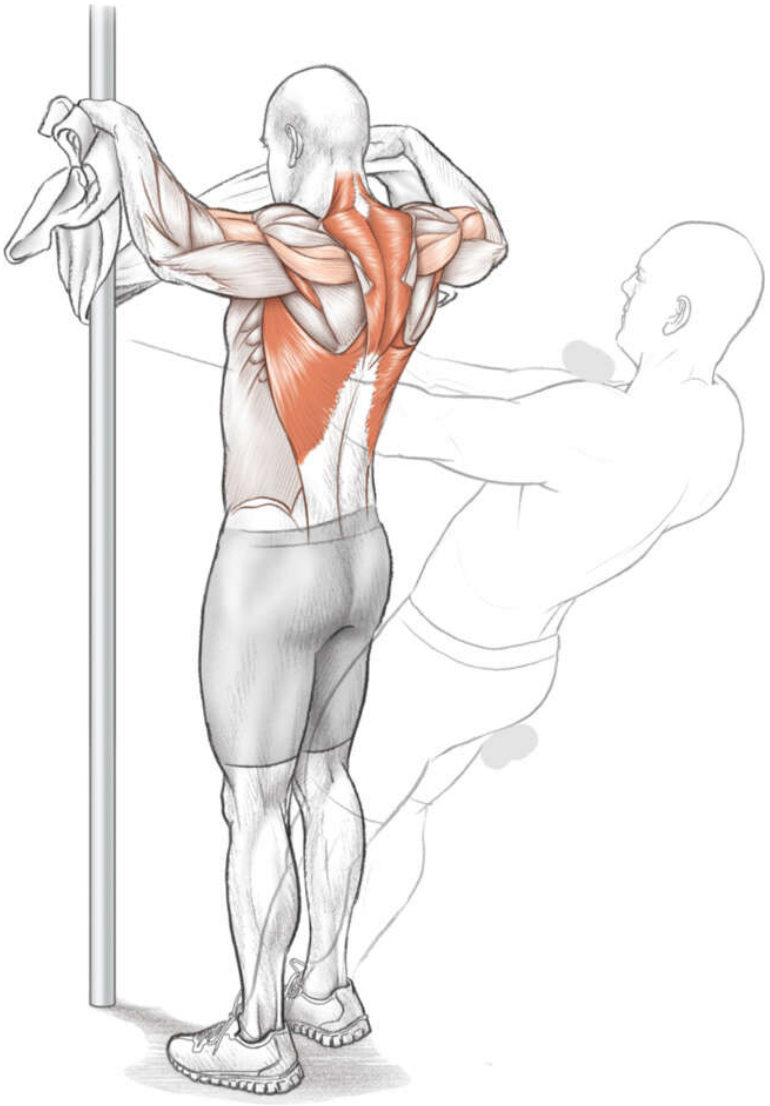
your abs expand to the starting resting position.

CHAPTER 6

Back

The back musculature is complex and vital to producing movement. Muscles and connective tissue that comprise the back include the spinal erectors, lats, traps, rhomboids, and thoracolumbar fascia, which is sometimes called the *lumbodorsal fascia*. Each muscle plays a pivotal role in producing, reducing, or transferring force from one body segment to another. Before I delve into the functions of the muscles and fascia, I first want to address the importance of a strong back.

Many love to train the beach muscles—the pecs, biceps, and abs. Because these muscles are on the front of your body, they're the most common muscles gym rats around the world worship. It's natural to want to build up the beach muscles because there is a perception that everyone admires well-defined pecs, arms, and abdominals. That said, a strong and muscular back is essential for a pleasing physique and a properly functioning body. You won't see wrestlers or American football players with wimpy backs. Powerlifters, Olympic weightlifters, and strongmen all have powerful backs as well.



Besides the aesthetic appeal of developed back muscles, back strength and stability are important too, especially in sports such as swimming and gymnastics. I have trained hundreds of people during my career as a personal trainer who were elated when they performed their first full-

range pull-up repetition. They're thrilled because most believed that they were not built to be able to bust out a pull-up. Can you believe that several of my advanced-trained female clients can perform 20 full range of motion chin-ups? This is more than I can do!

Back Muscles

The latissimus dorsi (lats) is one of the most versatile muscles in the body (figure 6.1). It's responsible for shoulder extension (as in a chin-up), shoulder adduction (as in a wide-grip pulldown), and shoulder internal rotation (turning the arms inward in the shoulder socket). They have attachments all over the torso. If you consider the lats' reach through the thoracolumbar fascia, they attach to the vertebrae, pelvis, sacrum, ribs, scapula, and humerus. Moreover, the lats play a role in breathing, stabilizing the lumbar spine, assisting with scapular motion, and transferring forces between the upper and lower body. While all rowing and chinning motions strengthen the lats and scapular muscles, you should row and chin from a variety of angles to maximally develop all the fibers. The lats can be lengthened at the humerus (flexion) but even more so by pulling the arm around the ribcage, at the scapulae (elevation and protraction), and even the spine (lateral bending and rotation).

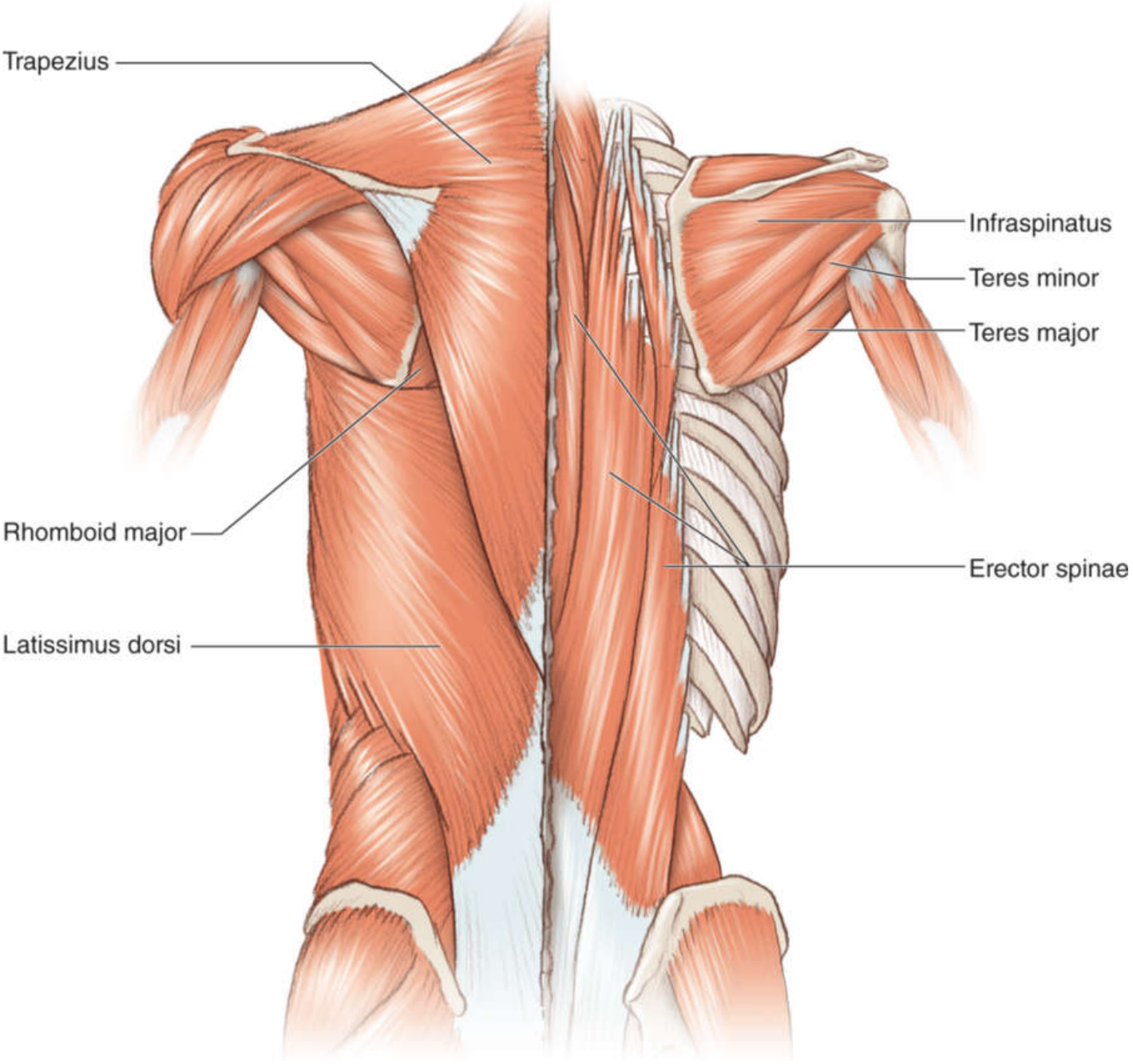


Figure 6.1 Back muscles: trapezius, rhomboid major, latissimus dorsi, infraspinatus, teres minor, teres major, erector spinae.

Realize, though, that a strong, muscular back isn't solely about having a wide lat spread. For an impressive back, you need to strengthen all the muscles in the region. The trapezius muscle is an important shoulder mover and stabilizer. It has three functional subdivisions, consisting of upper, middle, and lower components. The upper trap fibers are involved in scapular (shoulder blade) elevation and scapular upward rotation and are even involved in neck extension, lateral neck flexion, and neck rotation. The middle trap fibers produce scapular adduction as well as slight scapular elevation and scapular upward rotation. The lower trap fibers are scapular depressors and scapular upward rotators. When the upper and lower trap fibers contract together, they assist the middle fibers in scapular adduction. The rhomboids work in concert with the traps to adduct the scapula, which explains why both muscles are collectively called *scapula retractors*: They pull the shoulder blades together. The rhomboids are also downward rotators of the scapula. Lastly, the teres major and teres minor muscles shouldn't be ignored. The teres major can be very developed in some individuals and the muscle can generate a surprisingly high level of force and provide leverage to assist the lats and the rear delts.

Development of the spinal erectors (figure 6.2) is critical to long-term lifting prowess. The spinal erectors have many responsibilities. Along with the multifidus, they extend the spine, help prevent the spine from flexing (rounding) during deadlifts and squats, and along with muscles such as the quadratus lumborum laterally flex and rotate the spine.

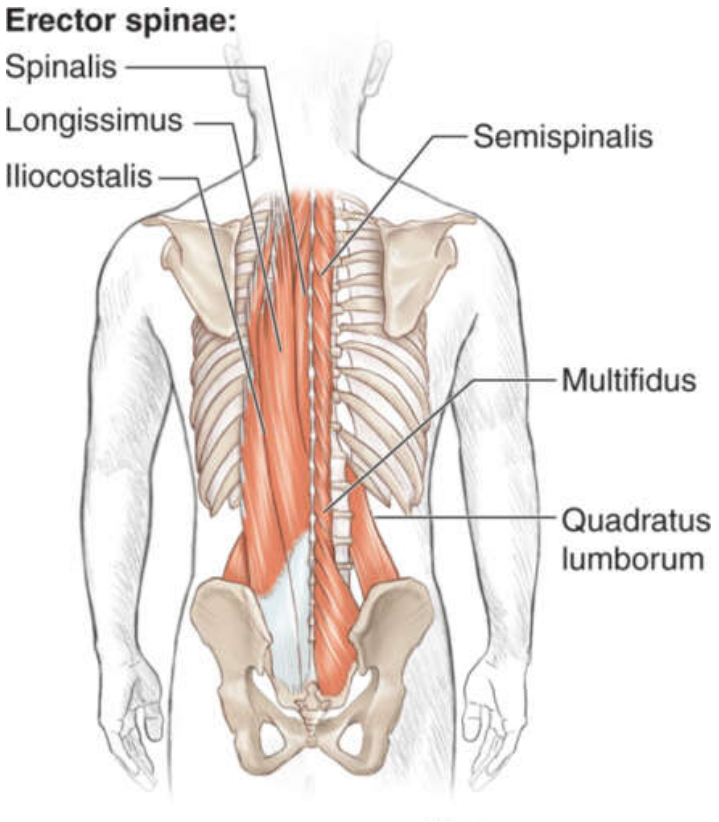


Figure 6.2 Erector spinae, multifidus, quadratus lumborum.

Finally, it is important to mention the role of the thoracolumbar fascia in spinal function. The thoracolumbar fascia (TLF) engulfs the fibers of many core muscles and transfers force between the upper and lower halves of your body. In addition, the TLF, when under tension from certain core muscles such as the lats and glutes, can provide an extension torque on the spine that helps prevent spinal flexion (rounding the low back). Many people are unaware of the lats' role as a stabilizer of the lumbar spine.

Actions of the Back Muscles

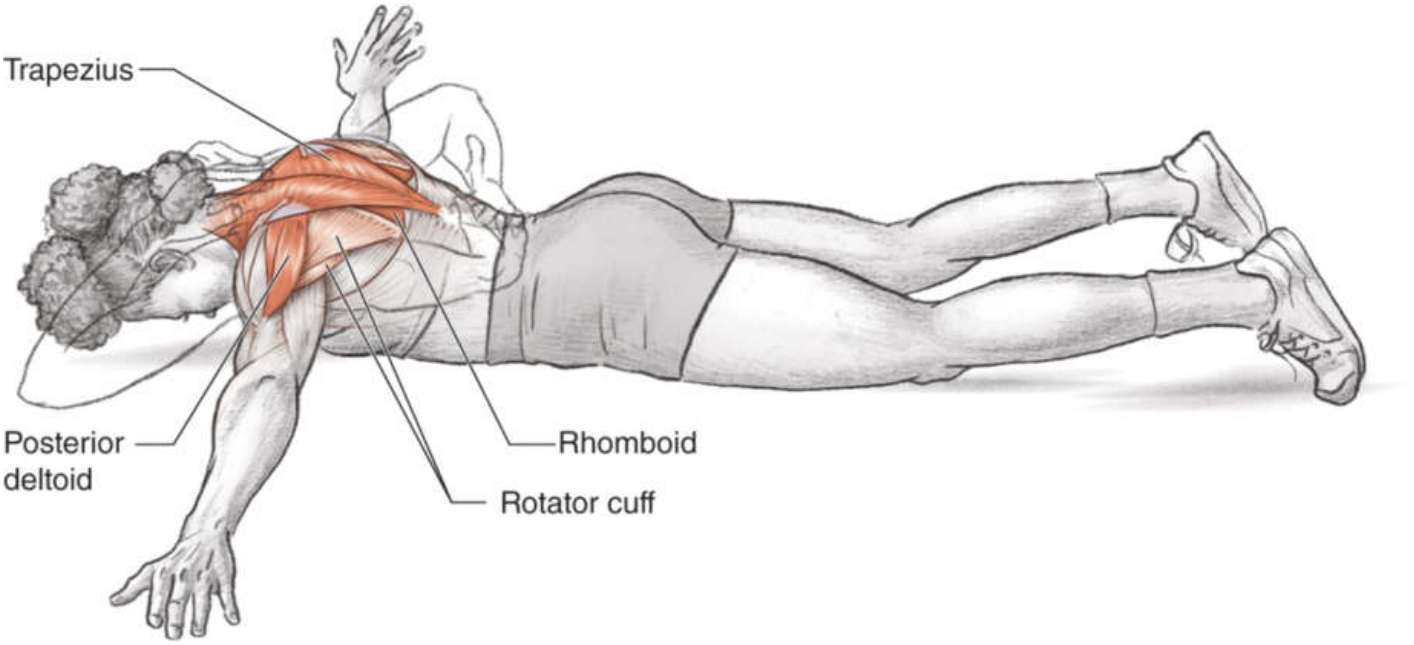
The back muscles are involved in nearly every sport action. The spinal erectors are the primary muscles for holding your body in an athletic position, which resembles the positioning of a bent-

over row exercise. The spinal erectors are also critical in lifting sports such as powerlifting, Olympic weightlifting, and strongman and in rowing and mixed martial arts. The lats are highly involved in rowing, in addition to gymnastics, swimming, and rock climbing. During sprinting, the opposing pairs of lats and glutes work together to transfer force and keep your body balanced. This diagonal pattern from right lat to left glute and left lat to right glute has been called the *serape effect* by some fitness experts, because of the wrapping action around your body similar to a serape. Furthermore, the lats are heavily involved in throwing, serving, and spiking actions. The traps and rhomboids stabilize the scapula during many athletic motions involving dynamic movement of the upper extremities.

On a personal note, I have not been dealt good genetics for developing impressive back width. Although my back is very thick from many years of deadlifting, I can't achieve the coveted outward flare to my lats no matter how many pull-ups and pulldowns I perform. This is not due to lack of strength either; I'm able to perform chin-ups with an extra 100 pounds (45 kg) attached to a hip belt, and I'm able to deadlift well over 600 pounds (272 kg). An impressive lat flare gives the illusion of a narrower midsection and helps produce an athletic-looking physique, so, unfortunately, I'll never appear as aesthetically pleasing as someone with ideal genetics. That said, I have improved my upper-back width considerably through consistent, scientifically based training. I believe that it's wiser to perform only a couple sets of a variety of back exercises than to crank out four or more sets of just one or two back exercises. The back has a lot of muscles, and you want maximal development of each muscle to function your best. A variety of back exercises ensures that you leave no stone unturned and dedicate adequate attention to the numerous components of the back musculature.

In chapter 2, I mentioned that your forearms gain strength through the pulling movements. As you progress in pulling strength, your grip will receive a powerful training stimulus. You won't find many people with advanced pull-up and inverted row strength who possess inferior forearm musculature. Get strong and gain endurance through the back exercises listed in this chapter and your entire forearms, both anterior and posterior musculature, will become denser and more muscular.

PRONE HOVER



EXECUTION

1. Lie prone on the ground with your arms next to your head and your hands behind your neck. Extend your thoracic spine and contract your glutes.
2. Extend your elbows and move your arms out to the sides to put them in a T position.
3. Adduct your shoulders (pull your elbows down to your sides) and internally rotate your shoulders (raise your pinky higher than your index finger) until you touch your hands at your lower back or until your mobility prevents you from going any further.
4. Reverse the range of motion.

MUSCLES INVOLVED

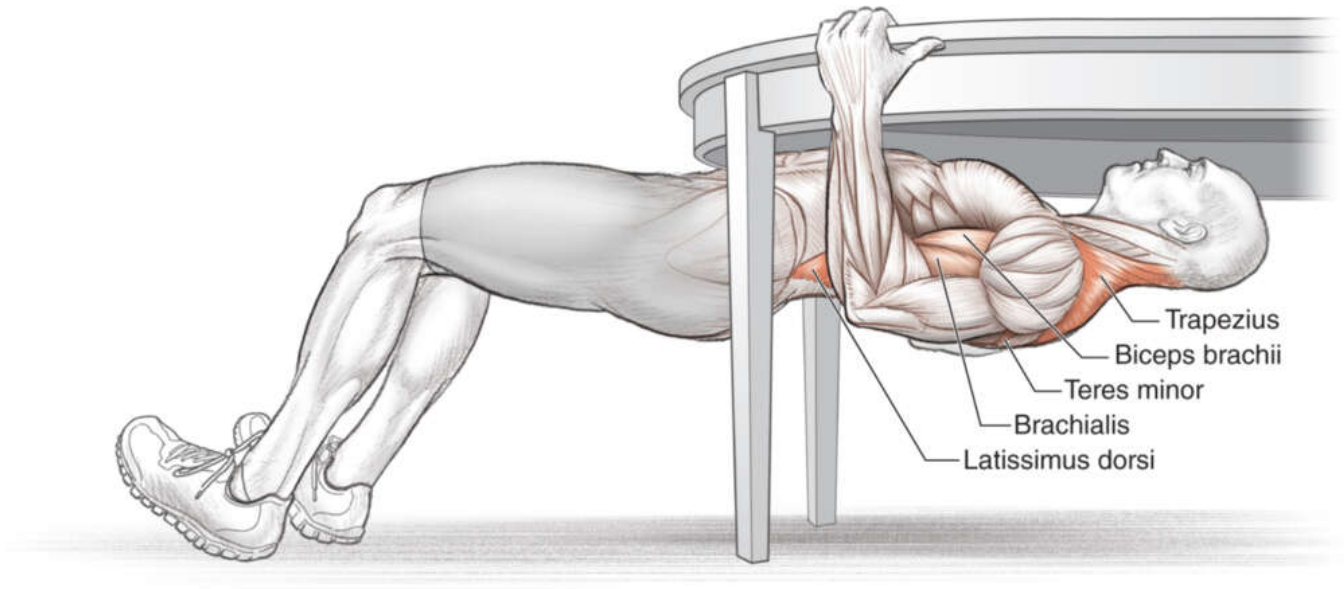
Primary: Trapezius, rhomboid, posterior deltoid

Secondary: Rotator cuff (infraspinatus, supraspinatus, subscapularis, teres minor)

EXERCISE NOTES

The prone hover targets the deep muscles of the back, the muscles responsible for spinal extension. The shoulder joint starts in an externally rotated position but gradually goes through internal rotation as the shoulder joint is adducted. While this doesn't maximize the stimulation of any one muscle group, it provides a comfortable stimulus to promote joint safety and stability.

INVERTED ROW



EXECUTION

1. Grasp the sides of a sturdy table, keeping your knees bent at about 90 to 135 degrees and your heels planted firmly on the ground. With your core tight, allow your upper body to hang at full arms' length from the table. It's a good idea to perform this exercise over a forgiving surface, such as soft carpeting.
2. Keeping your body in a straight line from your knees to your shoulders, pull your body up until your chest meets the table.
3. Lower your body to the starting position under control.

MUSCLES INVOLVED

Primary: Latissimus dorsi, teres minor, trapezius, rhomboid

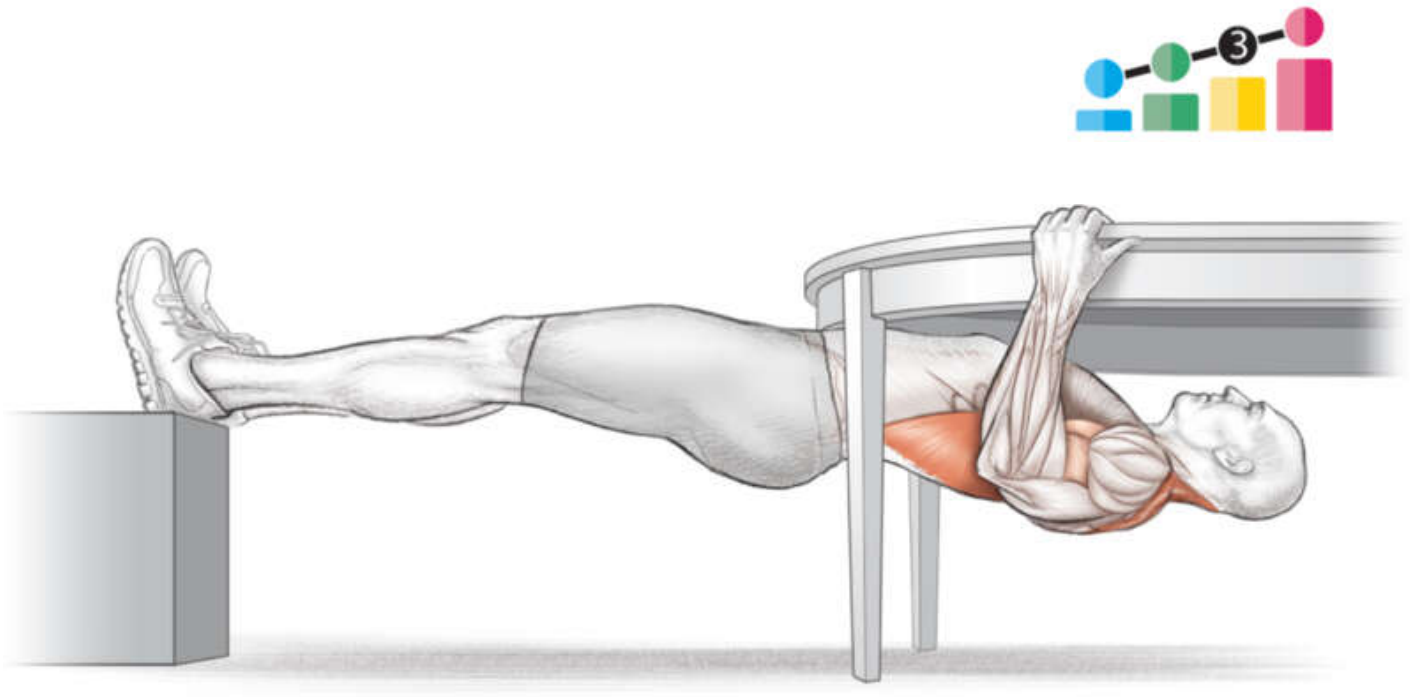
Secondary: Brachialis, biceps brachii

EXERCISE NOTES

The inverted row is a staple upper-body pulling movement using body weight. If you don't have access to a standard exercise bar or suspension system, it can be performed several ways. First, if you have a table that is the right width and doesn't have anything blocking your path, you can use a table by holding on to the sides. Second, if you have a sturdy broomstick, you can suspend it between two chairs and use it as a rowing bar. Third, you can use the edges of two chairs by positioning your arms close to the end of the chairs and wrapping your hands over the top in a neutral position. Make sure you keep your chest up and use a full range of motion on these.

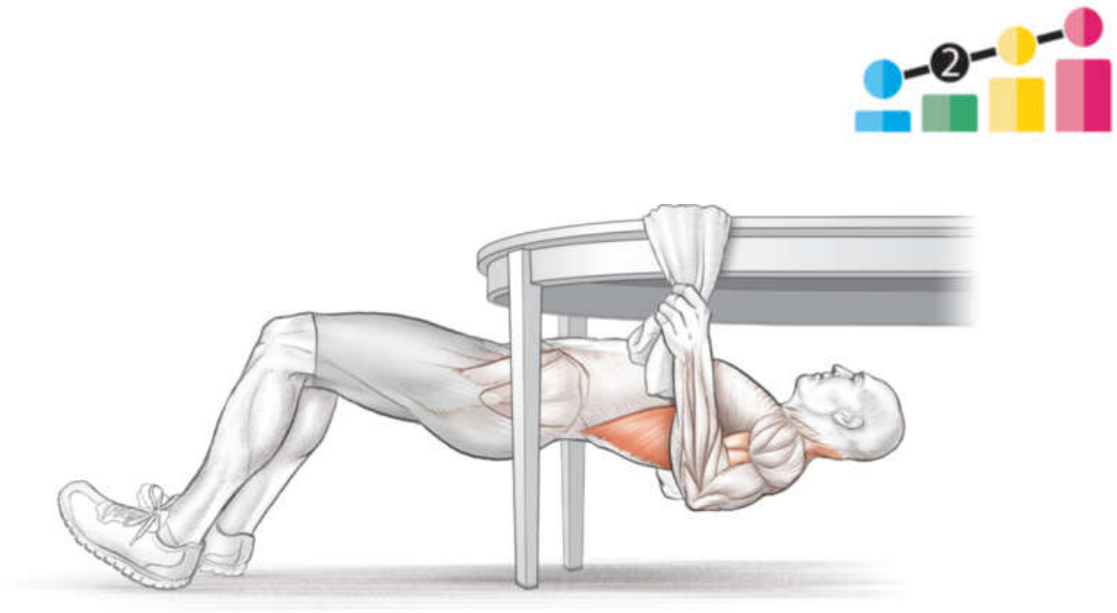
VARIATIONS

Feet-Elevated Inverted Row



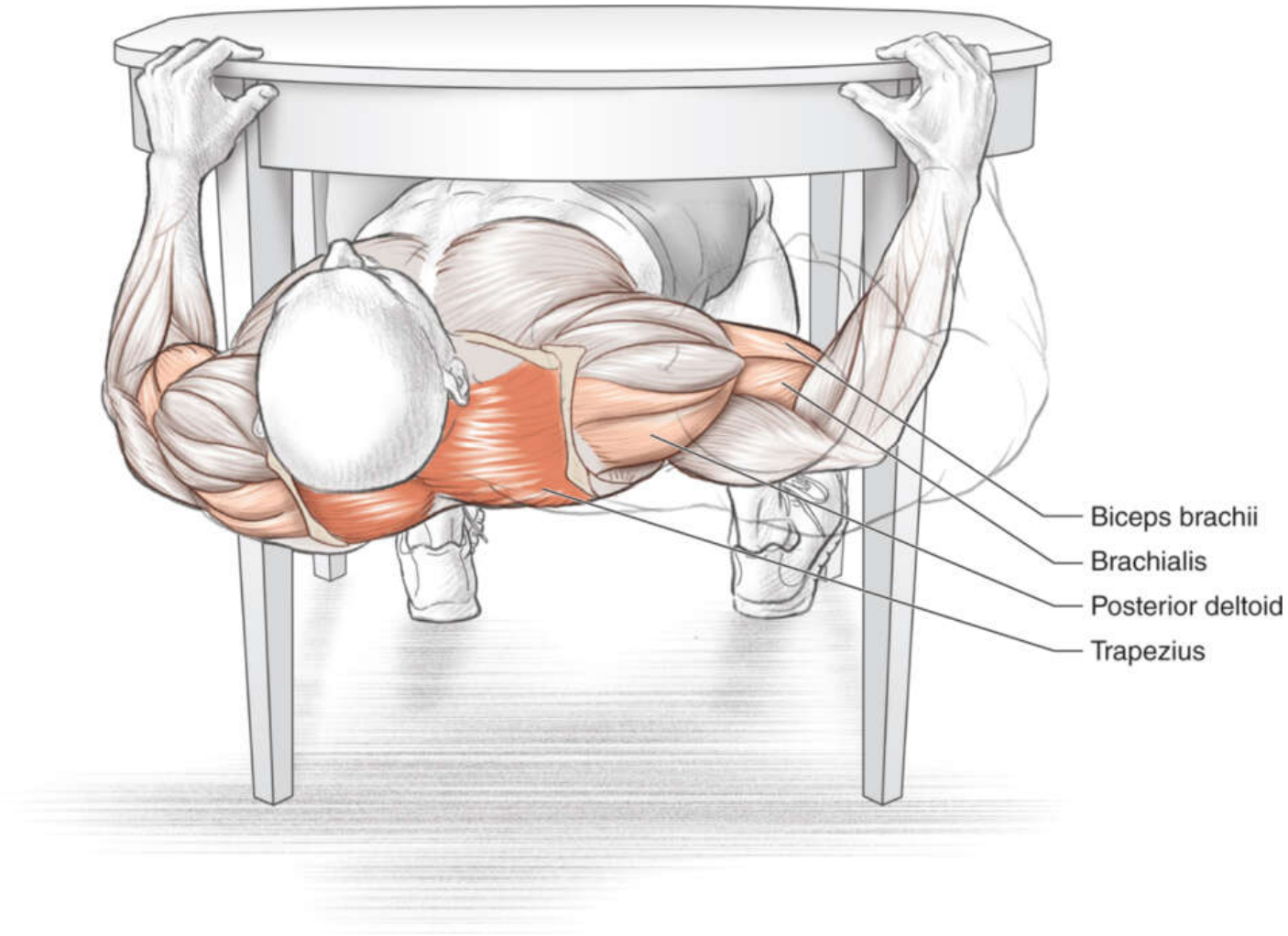
Once you reach proficiency with the inverted row, you can make the movement more challenging by progressing to the feet-elevated variation. Remember to keep your body in a straight line and squeeze your shoulder blades together at the top position.

Towel Inverted Row



The towel inverted row is another option. You can figure out a way to drape a towel over a table, the corner of a table, two tall chairs, or even a door if you have a very long towel. You can get an efficient workout while positioning your body at a steeper incline. Focus on keeping your elbows to your sides and your chest high, and squeeze your shoulder blades back and down.

SIDE-TO-SIDE INVERTED ROW



EXECUTION

1. Grasp the sides of a sturdy table, keeping your knees bent at about 90 degrees and your heels planted firmly on the ground. With your core tight, allow your upper body to hang at full arms' length from the table.
2. Keeping your body in a straight line from your knees to your shoulders, pull with your arms to raise your body to one side until your chest meets the table near your hand. Be sure to keep your core tight.
3. Lower your body to the starting position and repeat, alternating sides.

MUSCLES INVOLVED

Primary: Latissimus dorsi, teres minor, trapezius, rhomboid

Secondary: Brachialis, biceps brachii, posterior deltoid

EXERCISE NOTES

The side-to-side inverted row is an advanced version of the inverted row, and just like the side-to-side pull-up, it places about 70 percent of the load on the side you're working and 30 percent of the

load on the other side. This makes for a much more challenging exercise for the lats and scapular muscles. Rowing strength is critical for long-term shoulder health, so don't underestimate its importance. Although they're not as dynamic as pull-ups, they're every bit as important for scapular stability and shoulder health.

VARIATIONS

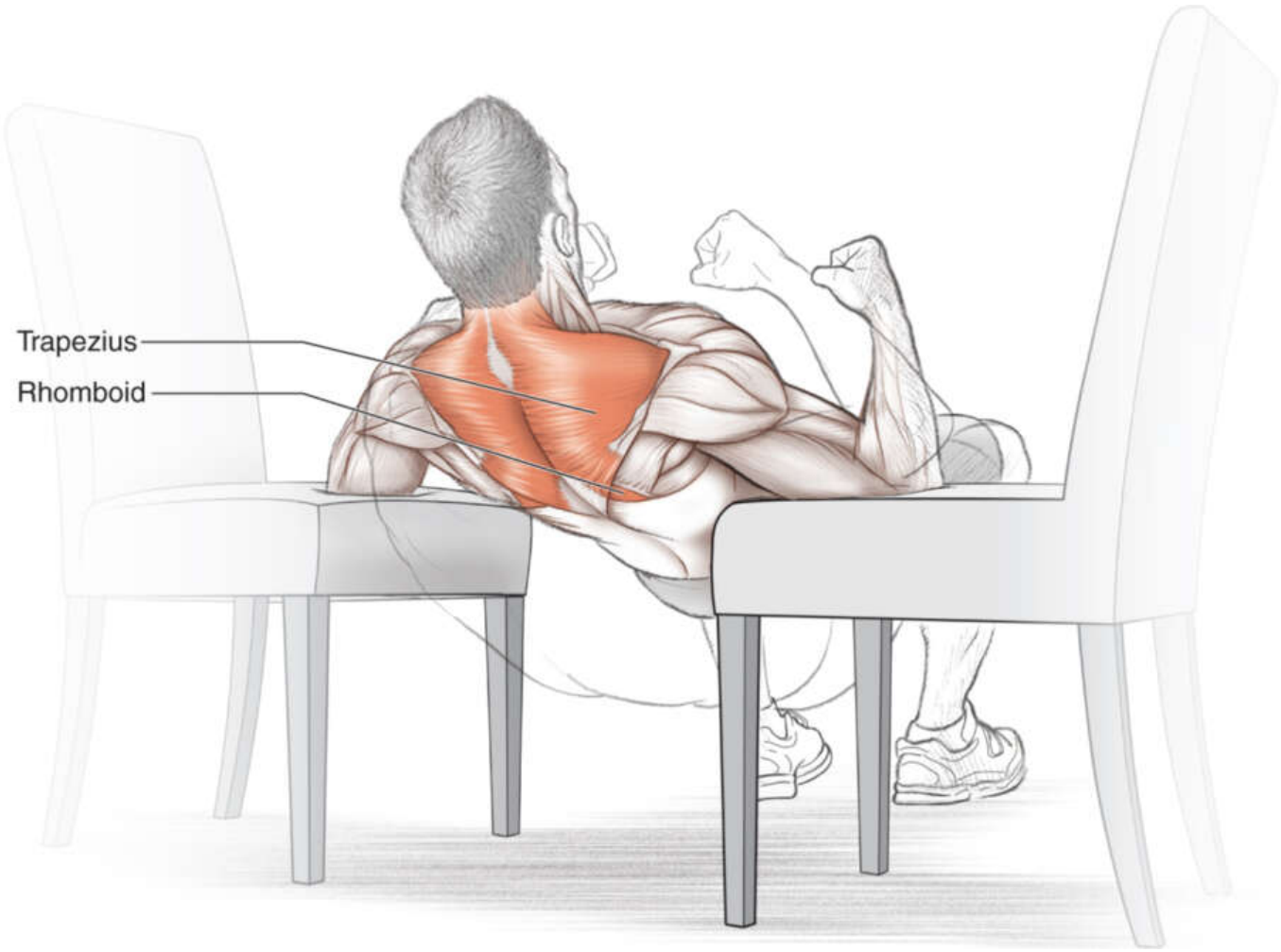
Sliding Side-to-Side Inverted Row

The sliding side-to-side inverted row is a highly advanced maneuver. As in the case of the sliding side-to-side pull-up, not many people can perform this exercise right off the bat. If needed, start with your body at a steep incline so you learn to perform the movement correctly because it's easy to waste energy trying to keep your body stable through compensatory rotary motion or body contortion. From the angled starting position, row your body straight up, then slide your body all the way to one side, then all the way to the other side, then back to the middle, and finally back down. Congratulations—you just performed one repetition. Alternate the side you shift to first on each repetition.

One-Arm Inverted Row

Once you've mastered the two-arm row variations, it's time to start practicing one-arm inverted rows. If you can start with a substantial body incline, you'll be able to perform the movement with good form right off the bat. It's okay to rotate a little bit at first, but over time try to limit rotation throughout the movement. A tall fence or a towel over a door are good props for this exercise.

SCAPULAR SHRUG



EXECUTION

1. Position your body between two couches, chairs, or weight benches with your feet on the floor, your hips extended in line with your shoulders, and the backs of your upper arms resting on the platform at about 45-degree angles relative to the torso.
2. Dig your elbows into the platform and squeeze your shoulder blades together. This will cause your chest to rise in a short range of motion.
3. Lower your body to the starting position under control and repeat.

MUSCLES INVOLVED

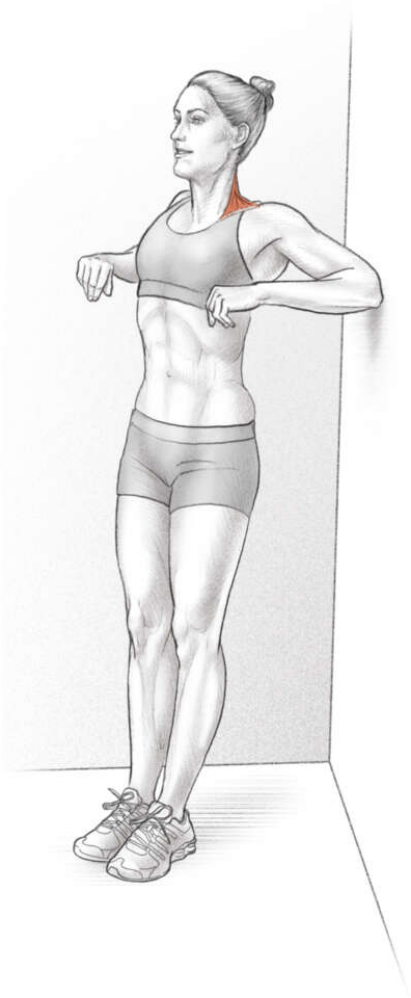
Primary: Trapezius, rhomboid

EXERCISE NOTES

During this exercise, hold your body in a bridging motion while suspended between two chairs. By digging your elbows into the chairs and squeezing the scapulae together, you'll perform a short-range movement that targets the scapula retractors. Keep your chest up and your hips high and control the movement on the way down.

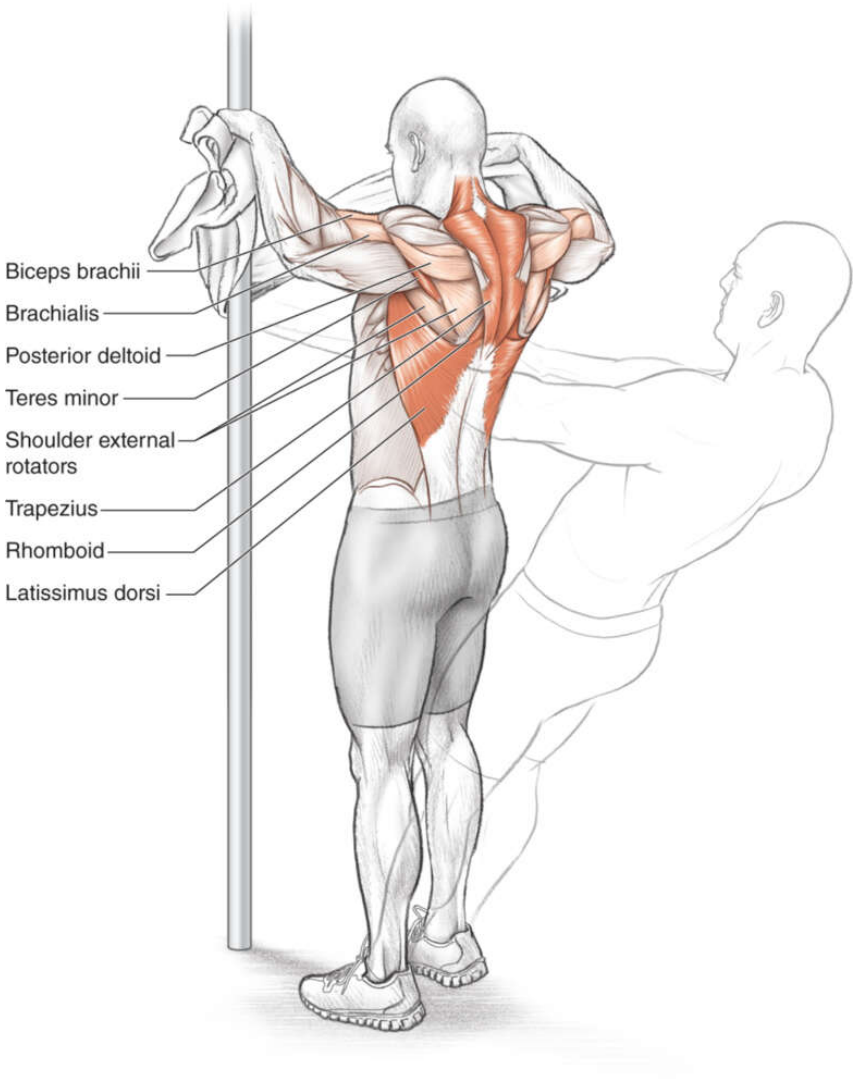
VARIATION

Corner Scapular Shrug



Stand with your back to a corner, your upper arms in position against the two walls, and your feet a few feet (a meter or so) out in front of the corner. Move your body outward, away from the corner, by squeezing the scapulae together. This is a short-range movement that targets the scapula retractors. Adjust your foot position to find the appropriate distance that creates just the right challenge.

SHEET FACE PULL



EXECUTION

1. Hold on to the ends of a sheet or towel that is looped around a pole and lean back with the sheet or towel supporting your weight and your elbows fully extended.
2. Keeping your chest up, your core tight, and your body in a straight line, pull your hands toward your ears while squeezing your scapulae together.
3. Lower to the starting position.

MUSCLES INVOLVED

Primary: Trapezius, rhomboids, posterior deltoid

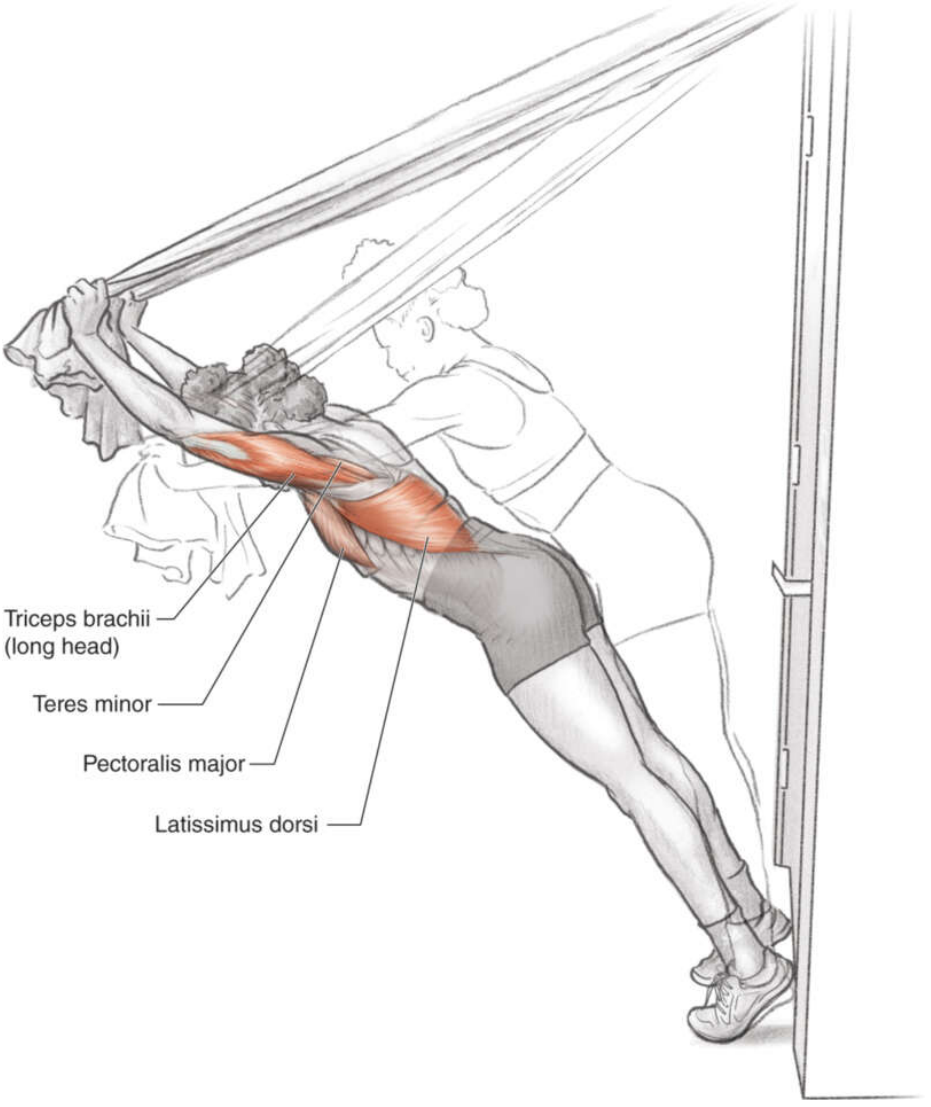
Secondary: Latissimus dorsi, brachialis, biceps brachii, shoulder external rotators, teres minor

EXERCISE NOTES

The sheet face pull is an excellent exercise to perform from time to time to develop scapular stability and shoulder health. It works the scapular muscles slightly differently than rowing

movements and provides variety. You won't be able to perform towel face pulls from the same angle that you perform inverted rows because you won't be quite as strong in this movement pattern and will therefore require a steeper body angle. Keep your chest up and use a full range of motion. This exercise doesn't require much of an angle to challenge the muscles if you keep your body tight and squeeze the scapula together at the end range.

SHEET PULLOVER



EXECUTION

1. Drape a sheet or towel over a chin-up bar or rafter or wedge it over a hook behind a sturdy door. Anchor your heels against the wall and grab the sheet or towel with both hands. Face away from the attachment point and allow your body to fall forward as you raise your arms overhead.
2. From this stretched position, drive your elbows straight down without bending your elbows until your arms are approximately perpendicular to your torso. Continually brace your core to prevent lumbar hyperextension.
3. Lower yourself back to the starting position.

MUSCLES INVOLVED

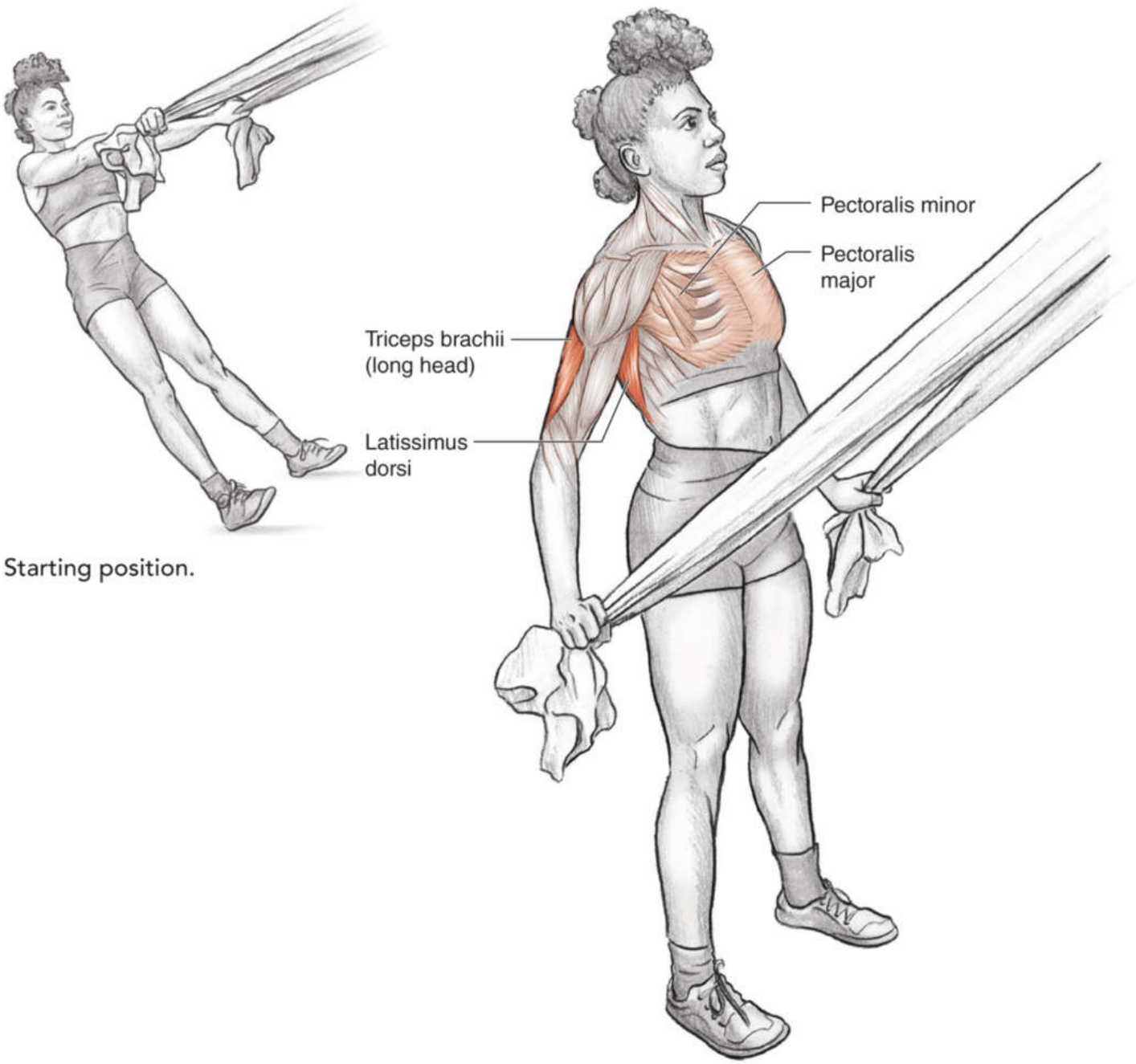
Primary: Latissimus dorsi, triceps brachii (long head)

Secondary: Pectoralis major, pectoralis minor, teres minor

EXERCISE NOTES

The sheet pullover is a challenging distant variation of the pull-up, where you're taking the shoulder joint through 90 degrees of extension, carried out by the lats and assisted with the long head of the triceps. Set up by anchoring a sheet or towel and gripping it toward the ends. Allow your torso to drape forward until your arms are directly overhead. Raise your torso by pulling down with your hands. There's no tension at the top when your torso is perfectly upright, so there's no need to fully extend your shoulder joint. The more horizontal your torso is at the bottom, the more challenging it will be, so you can scale the difficulty to make the tension appropriate.

SHEET STRAIGHT-ARM PULLDOWN



EXECUTION

1. Drape a sheet or towel over a chin-up bar or rafter or wedge it over a hook behind a sturdy door. Grab the sheet or towel at shoulder height with both hands. Face toward the attachment point and pull tension into the hold.
2. Allow your body to fall backward to stretch your lats. Brace your core to prevent lumbar hyperextension.
3. Pull your elbows straight down to your sides, bringing your torso from being pitched backward to being fully upright.

MUSCLES INVOLVED

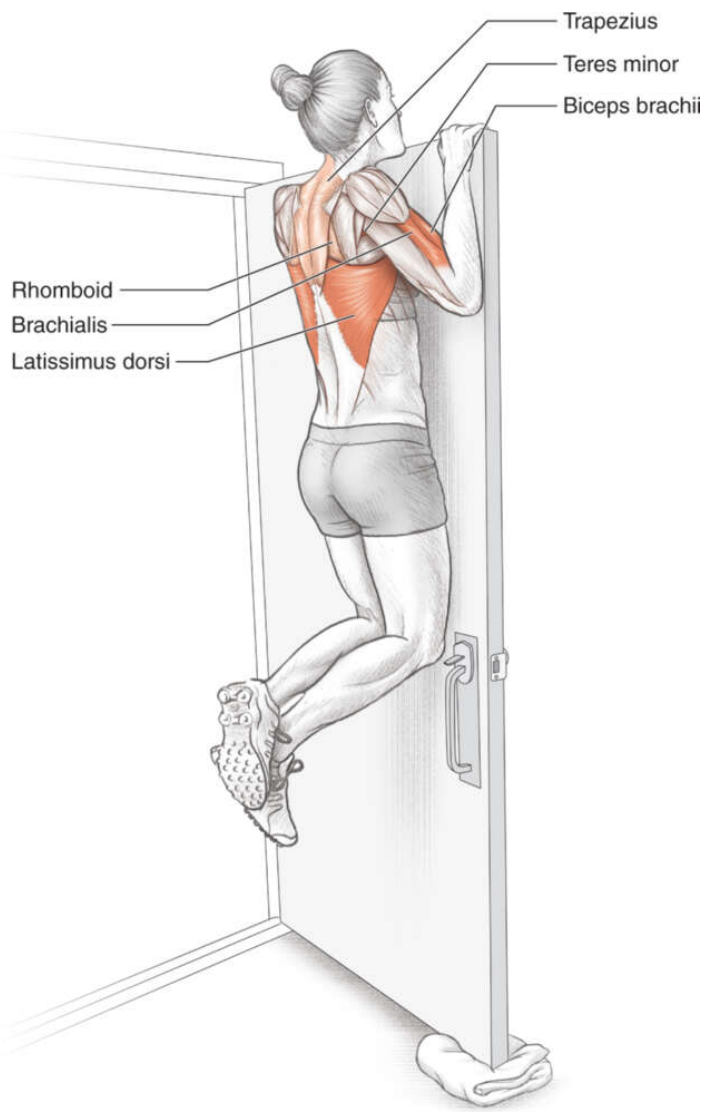
Primary: Latissimus dorsi, triceps brachii (long head)

Secondary: Pectoralis major, pectoralis minor, teres minor

EXERCISE NOTES

The sheet straight-arm pulldown can be seen as a more open-chain variation of the sheet pullover, where you're moving the sheet or towel ends rather than fixing your arms and moving your body around the ends. Set up as you would a sheet pullover but face toward the point of attachment rather than away from it. The execution will remain the same; however, you'll be physically pulling the sheet or towel ends down significantly more as your torso rises.

PULL-UP



SAFETY TIP: **Use a very secure, sturdy door or a standard chin-up bar for this exercise.**

EXECUTION

1. Place your hands over the top edge of a sturdy door using a pronated grip (palms facing away from your body), and position your body flush against the door. (To keep the door from swinging, wedge a towel or a book underneath the door.) Your body is flush against the door at the bottom but will move away from the door as you rise since your elbows are pinned against the door. If a standard chin-up bar is available, that may be the preferred option.
2. Raise your body as high as you can while keeping a straight line from your shoulders to your knees.
3. Lower to the starting position and repeat.

MUSCLES INVOLVED

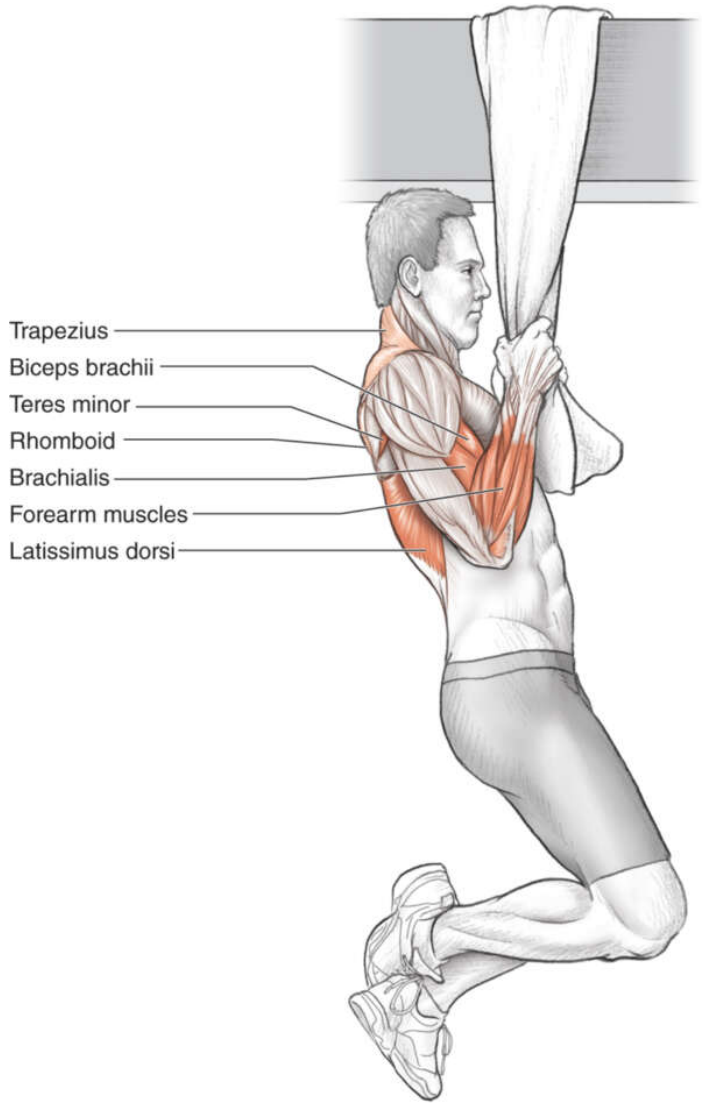
Primary: Latissimus dorsi, brachialis, biceps brachii, teres minor

Secondary: Trapezius, rhomboid

EXERCISE NOTES

The pull-up is a challenging movement for the lats, but special consideration needs to be taken to ensure that you do not damage the door, if you choose to use one. I've performed them for years on sturdy doors such as the solid front door of a house with no problems, but because I'm a bigger guy, I'm reluctant to attempt pull-ups on a hollow interior door such as a bathroom or bedroom door. I'm pretty sure I'd pull the door off the hinges! Make sure you perform them off a thick, sturdy door with strong hinges or better yet off a wall. Some exercisers have had success with wedging something such as a big book under a less-sturdy door to reduce the load on the door's hinges, but do this at your own risk; I'd hate for you to damage your property. At any rate, the pull-up has you hinging your body around your elbow joints while your body slides up and down the door, making it even more difficult than a standard chin-up.

SHEET PULL-UP



EXECUTION

1. Drape a towel over a chin-up bar or rafter. Grab the towel with both hands.
2. From a stretched position, raise your body while keeping your core in neutral and pulling until your hands meet your upper chest.
3. Lower to the starting position and repeat.

MUSCLES INVOLVED

Primary: Latissimus dorsi, brachialis, biceps brachii, teres minor, forearm muscles such as the flexor carpi radialis and palmaris longus

Secondary: Trapezius, rhomboid

EXERCISE NOTES

The sheet pull-up is an amazing forearm exercise that will build considerable grip strength. Maintain proper pull-up form—don't allow your core to hyperextend, your hips to flex, or your neck to flop.

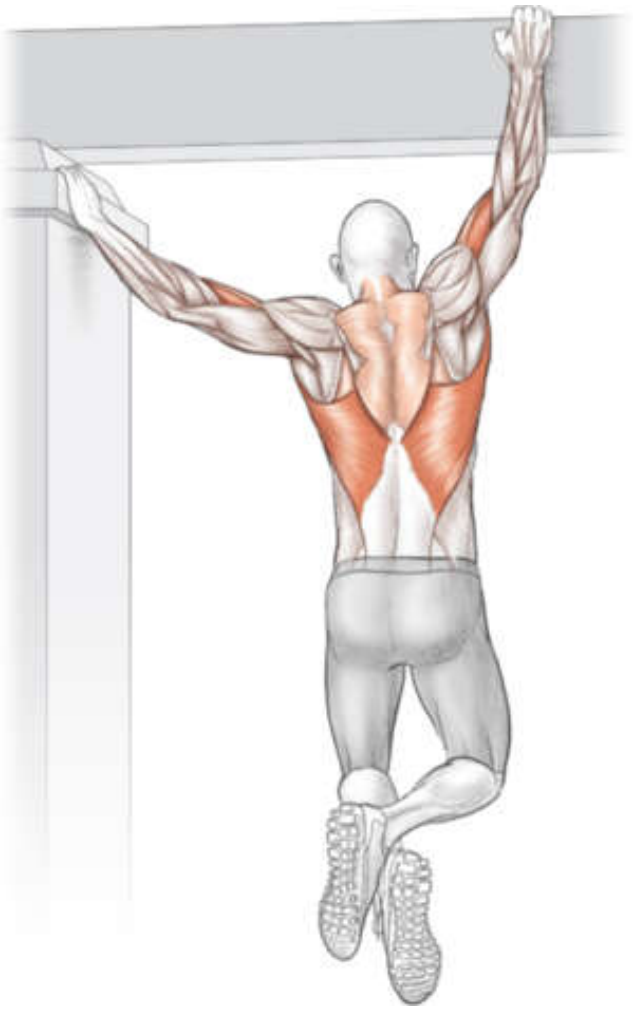
Attempt to spread the towel ends apart at the very top of the motion to maximally engage your scapular retractors. This exercise is needed if you participate in grappling and racket sports, which require maximal grip strength.

VARIATIONS

Sheet-Assisted Pull-Up

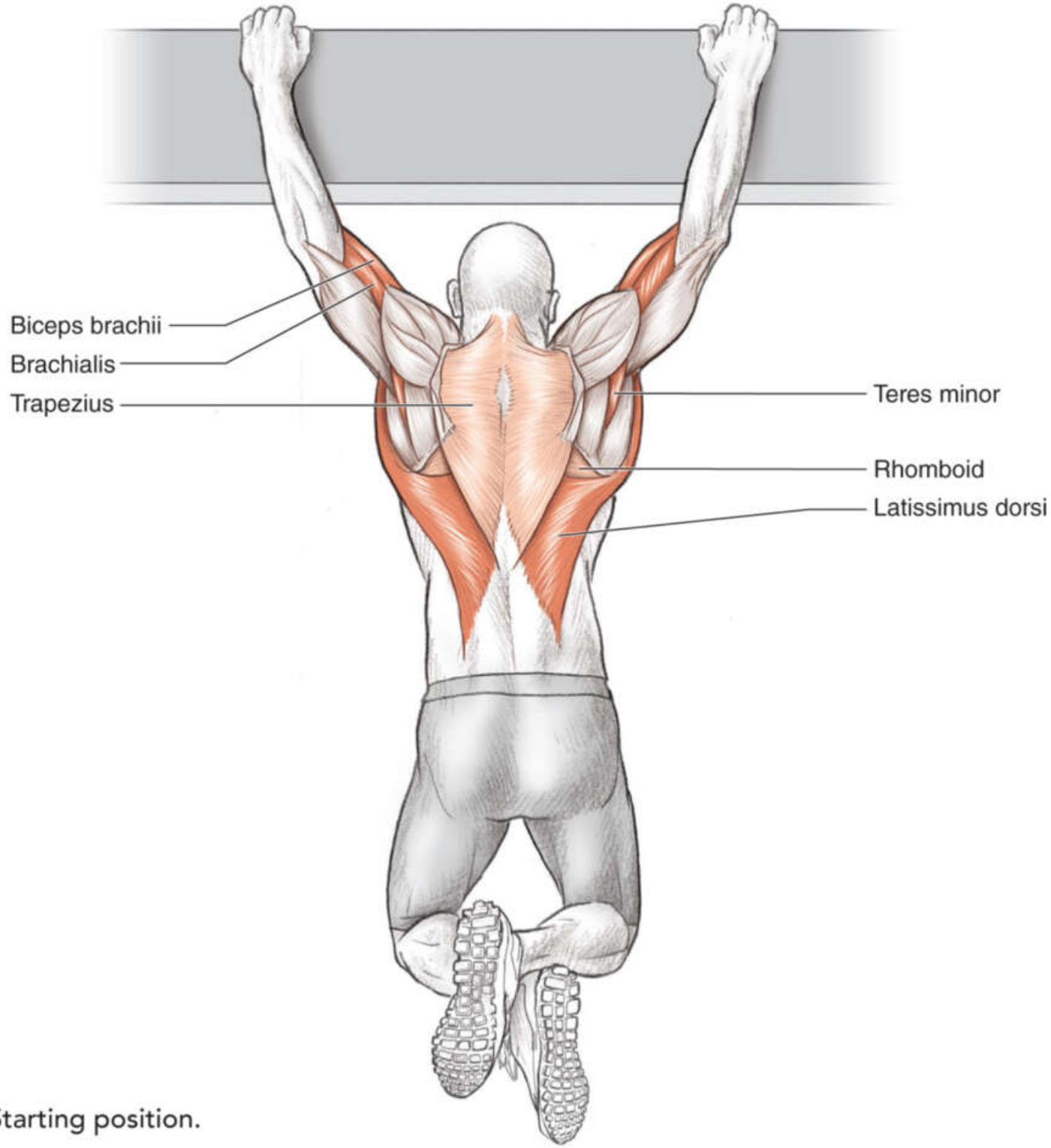
The sheet-assisted pull-up allows you to reduce the difficulty of the sheet pull-up by using leg drive. Unlike traditional assisted vertical pulling machines, the amount of resistance you're using is dynamic, allowing you to fine-tune the perfect amount of assistance as required. Set up with the sheet placed a few inches or centimeters taller than you and assume a grip as you would with a standard sheet pull-up. With your feet planted on the ground, use your legs as little as possible, primarily focusing on pulling yourself up with your upper body. As you gain strength, you'll be able to increasingly rely on less leg drive.

One-Arm Self-Assisted Pull-Up

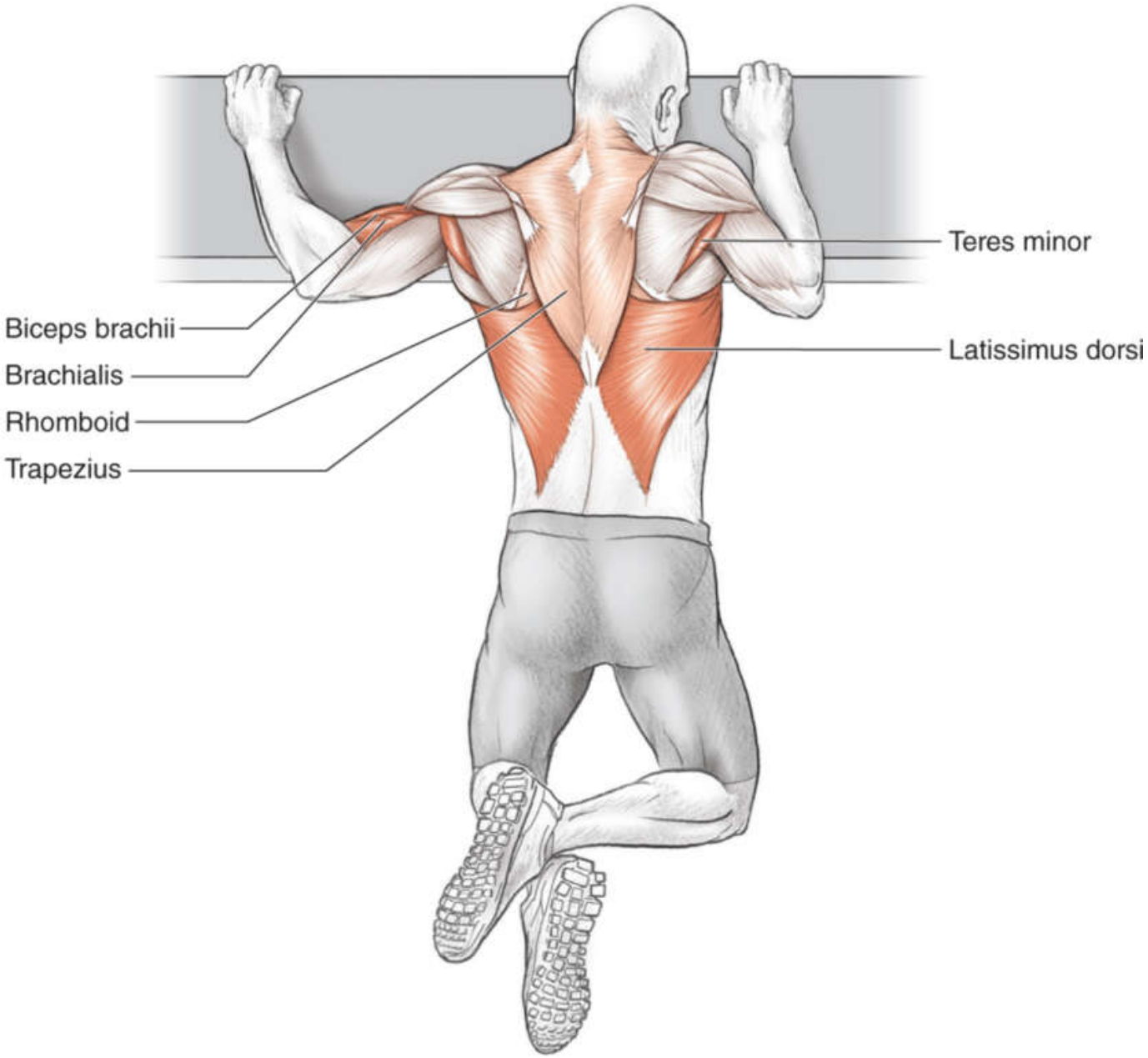


The one-arm self-assisted chin-up is a highly challenging maneuver that only people with the most advanced upper-body strength will be able to master. However, you can always use the nonworking arm for a bit of assistance, and you just might end up being able to perform an unassisted one-arm chin-up one day. If possible, find a beam narrower than a rafter because this exercise requires a pronated (palms facing away from your body) or supinated (palms facing toward your body) grip. A neutral grip is possible as well if you align your body so you are facing in the same direction as the length of the rafter and hold on to something placed beside the rafter.

SIDE-TO-SIDE PULL-UP



Starting position.



Pull up to one side.

EXECUTION

1. Hang from a chin-up bar or rafter with your hands pronated and slightly wider than shoulder-width apart. Your knees can bend slightly or remain relatively straight.
2. Keeping your chest up and your core tight, pull your body up toward one side until your chin is over the rafter.
3. Lower to the starting position and repeat, alternating from side to side.

MUSCLES INVOLVED

Primary: Latissimus dorsi, brachialis, biceps brachii, teres minor

Secondary: Trapezius, rhomboid

EXERCISE NOTES

The side-to-side pull-up is an advanced movement that places about 70 percent of the load on the side you're working and 30 percent of the load on the other side. This makes for a more challenging exercise for the lats and other pulling muscles. Keep the core in a neutral position. It will want to contort itself, either hyperextending at the lumbar spine or flexing at the hips. Think of the chin-up

as a moving plank (it's good to think this way about push-ups too) and keep a straight line from your shoulders to your knees throughout the movement.

VARIATION

Sliding Side-to-Side Pull-Up

The sliding side-to-side pull-up is a highly advanced maneuver that few people can perform. This exercise requires that you first raise your chin over the bar as you would in a standard pull-up. Then slide all the way to one side and all the way to the other side before sliding back to the middle and finally lowering to the starting position. That is one repetition. You won't be able to perform many repetitions of this exercise, assuming you can do it at all.

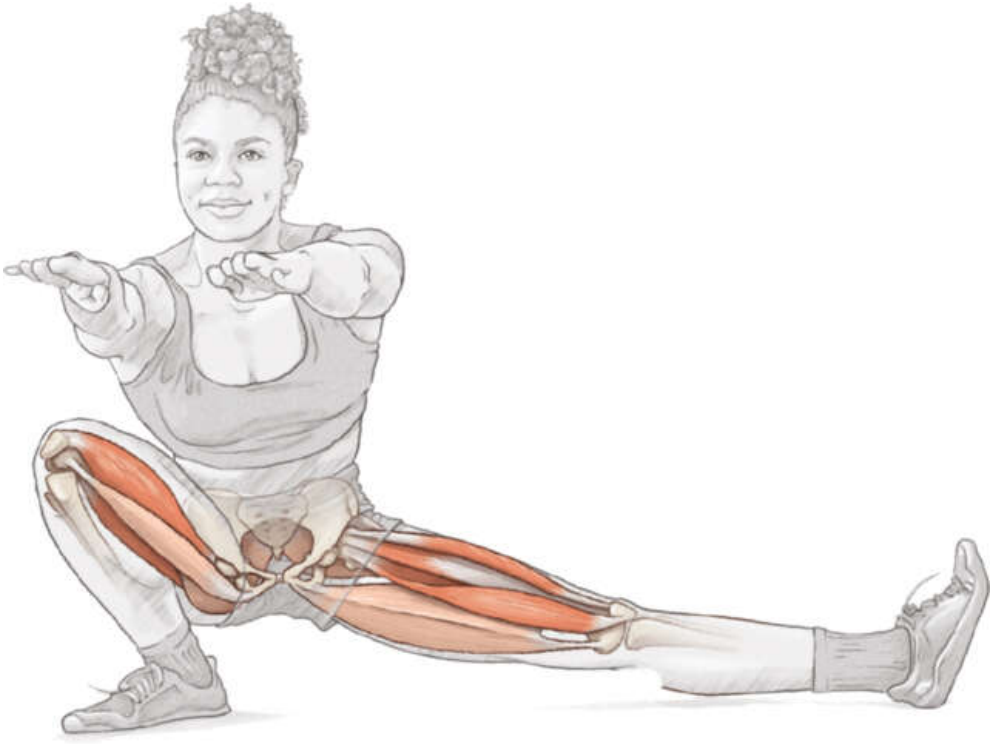
CHAPTER 7

Thighs

Go to any gym, and you'll see that well-developed upper bodies are a dime a dozen. Even folks who train with just their own body weight typically have impressive pecs, shoulders, lats, and arms. But most of these lifters have a light bulb shape with legs befitting a chicken. Many lifters toil away, working their upper bodies, only to skip leg training or, at best, perform a couple of token sets of leg presses, leg extensions, and leg curls on leg day. While much better than avoiding leg training altogether and leaps and bounds above claiming to hit the legs by running on the treadmill, this abbreviated leg workout leaves much room for improvement. And as I mentioned before, effective upper-body training with just body weight is intuitive for many lifters because most exercisers are well aware of push-ups, pull-ups, and sit-ups, but most don't have the slightest clue how to work the legs effectively with just their body weight. The good news is that with a little ingenuity, it's easy to develop impressive lower-body musculature using just the weight of one's own body for resistance.

I'm very proud of my leg development because it's indicative of many years of hard work. I'm not genetically predisposed to having muscular thighs—far from it. But through many years of consistency and effort, I've built them up to appreciable levels. And although I train with weights, I'm certain that I could maintain my thigh musculature, and quite possibly build on it, by switching solely to bodyweight training for the lower body. How can I be so sure? Because as you'll soon see, there are dozens of challenging and effective bodyweight exercises for the legs.

Lifters need to take pride in their lower-body development and learn to appreciate the challenges associated with lower-body training. After years of trying, I finally convinced my stepbrother to start training his legs. Previously, he worked his chest and arms twice a week and his back and shoulders twice a week and did no leg training whatsoever. I coerced him into adding one leg day a week, and he remarked that "the leg day is just as hard as all the upper-body days combined." He's right; upper-body exercises just don't tax you like compound lower-body exercises, primarily because of the enormous amount of muscle mass being worked during the set. For example, a Bulgarian split squat will involve the quadriceps, gluteus maximus, and adductors as prime movers, but many other muscles also contribute to the movement, including the gastrocnemius, soleus, hamstrings, gluteus medius, and gluteus minimus.



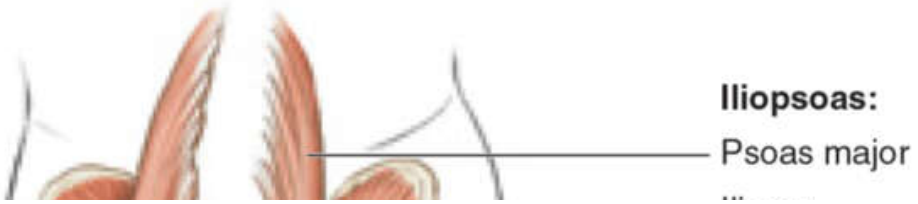
Leg training is an absolute must for those with aesthetic goals. Athletic-looking thighs greatly enhance appearance. Plus, lower-body training isn't just for developing shape. Because these exercises target large muscle mass, they require a considerable amount of energy to perform and therefore are terrific for shedding body fat. In fact, a hardcore leg workout does more for bringing out the abs than traditional core exercises. And while you're training your legs, you're creating a metabolic afterburn that keeps the engines revved for more than 24 hours following the actual workout. Ultimately, you'll burn extra calories around the clock, helping to keep you lean all over.

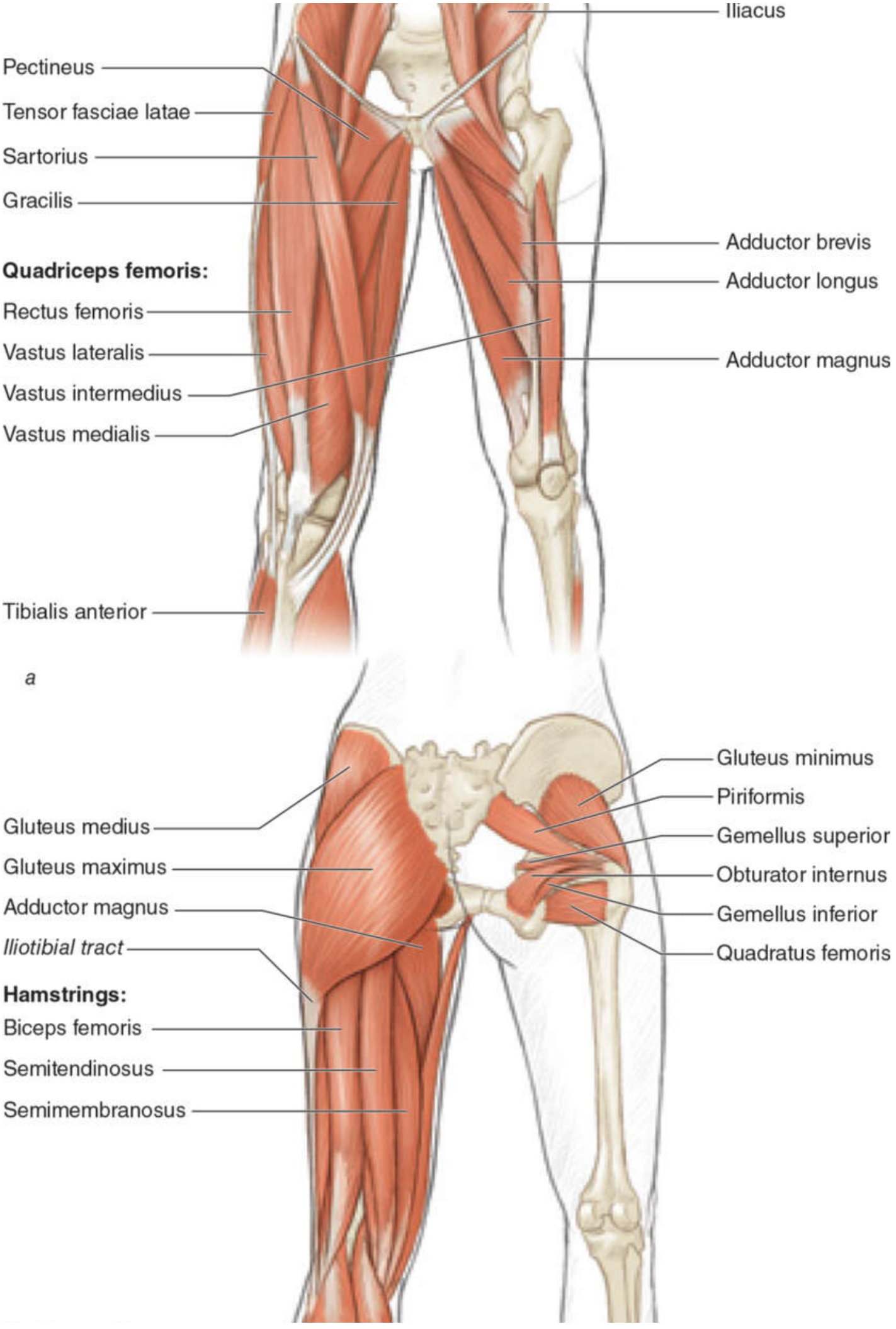
Thigh Muscles

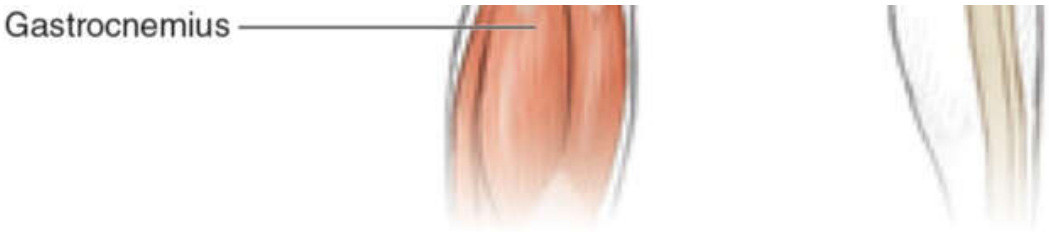
Many muscles comprise the thigh. The thigh muscles many people think of first are the quadriceps and the hamstrings. You have four quadriceps muscles: the rectus femoris (which is also a hip flexor), vastus intermedius, vastus lateralis, and vastus medialis (figure 7.1*a*). Their job is to extend the knee joint. You have three hamstring muscles: the biceps femoris, semitendinosus, and semimembranosus (figure 7.1*b*). Their job is to extend the hip and flex the knee. The biceps femoris has a long head and a short head. The short head is the only hamstring muscle that doesn't cross the hip joint and therefore doesn't extend the hip.

You also have the adductor group, consisting of the adductor longus, adductor brevis, and adductor magnus. These muscles make up a considerable portion of the thigh and shouldn't be neglected. While their primary role is adduction (moving the leg toward the center of your body), they also contribute to hip flexion and hip extension, especially the hamstring portion of the adductor magnus, depending on the position of the thigh. Lucky for you, the adductors receive a good training stimulus during single-leg exercises as they help power you out of the hole from a deep hips-flexed position.

There are plenty of other thigh muscles, including the psoas (an important hip flexor), gracilis, pectineus, and sartorius, but it's not mandatory for you to know every muscle's precise function. It is, however, necessary to understand how to effectively train the legs with proper form.




Iliacus
Pectineus
Tensor fasciae latae
Sartorius
Gracilis
Adductor brevis
Quadriceps femoris:
Adductor longus
Rectus femoris
Vastus lateralis
Adductor magnus
Vastus intermedius
Vastus medialis
Tibialis anterior
a
Gluteus minimus
Piriformis
Gluteus medius
Gemellus superior
Gluteus maximus
Obturator internus
Adductor magnus
Gemellus inferior
Iliotibial tract
Quadratus femoris
Hamstrings:
Biceps femoris
Semitendinosus
Semimembranosus



b

Figure 7.1 Muscles of the upper leg: *(a)* front of the leg and *(b)* back of the leg.

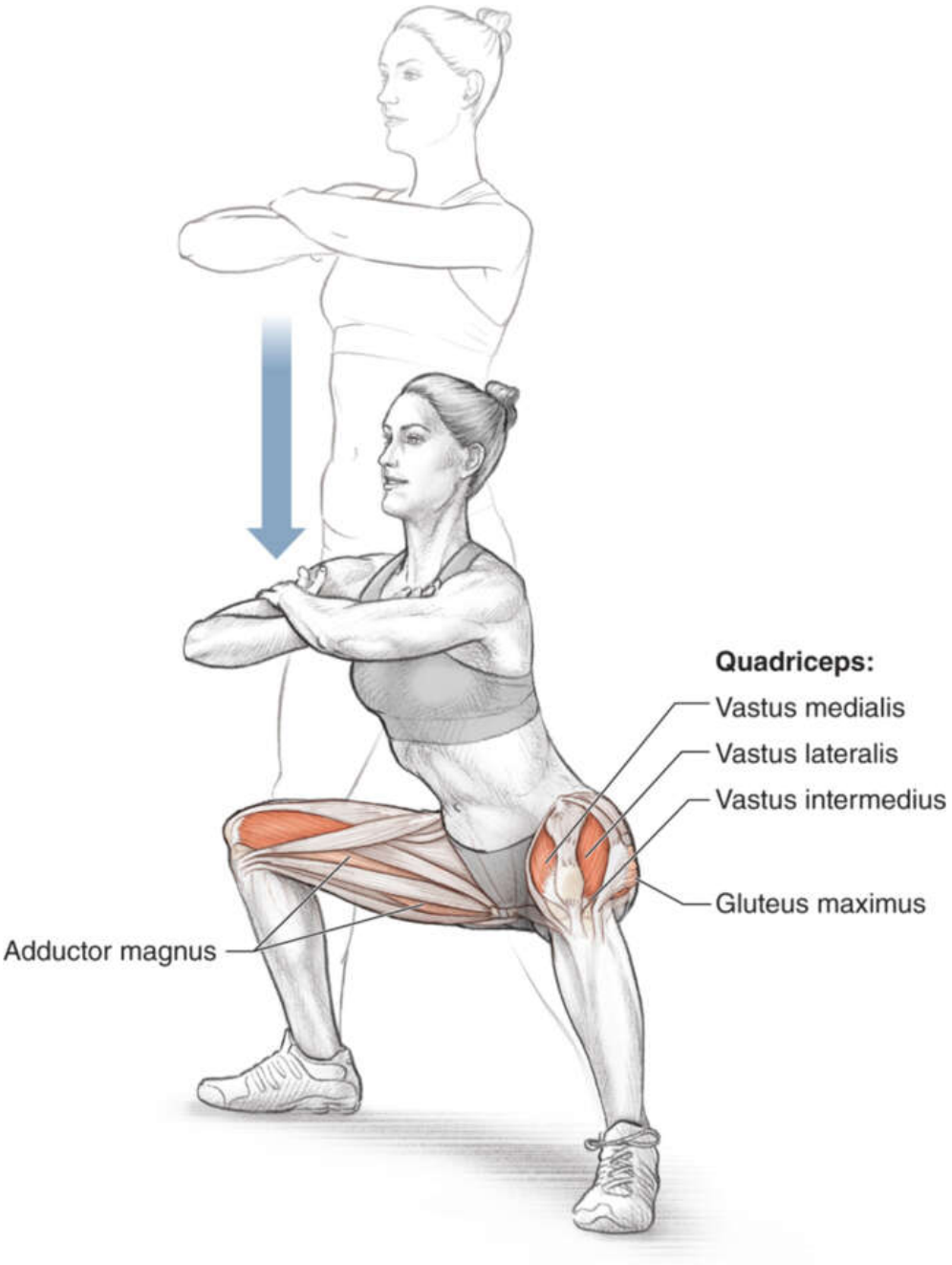
Thigh Actions and Movements

The thigh muscles are heavily involved in sports and functional movement. The quadriceps might be the most important muscles in vertical jumping, and they're critical for running, cutting, landing, and decelerating as well. The hamstrings might be the most important muscles in sprint running. The adductors are critical in lateral movement. In weight training, the quadriceps contribute considerably to the squat exercise, and the hamstrings contribute considerably to the deadlift exercise. I will be unable to name every sport action that requires ample leg strength and power; there are simply too many to mention. Every ground sport that requires speed, power, and agility relies predominantly on the leg muscles, and even swimming, rowing, and climbing use combined hip and knee extension for propulsion. Because the hamstrings cross both the knee and hip joints, they play critical roles in transferring power from the knee joint to the hip joint during explosive movement. Considering that most sports are performed one leg at a time, it makes sense to include plenty of single-leg lower-body exercises in your routine. Single-leg exercises develop sensorimotor (balance) skills while improving strength and power.

Many athletes are considered quad dominant because their quadriceps overpower their hamstrings. Athletes with overpowered quadriceps in relation to the hamstrings typically fail to move ideally when jumping, running, landing, and cutting, thereby predisposing themselves to injury. For this reason, it's important to develop strong hamstrings. Possessing strong quadriceps is important for sports, but you should also possess strong hamstrings as both hip extensors and knee flexors. Knee-flexion exercises work more on the distal part of the hamstrings (the part closer to the knees), while hip-extension exercises work more on the proximal part of the hamstrings (the part closer to the hips). This chapter includes a variety of hamstring exercises so you can strengthen them through all their roles and through full ranges of motion, leaving you with no weaknesses.

Many movement patterns described in this chapter lay the foundation for your athletic success. The fundamental motor patterns involved in bodyweight squatting, bending (hip hinging), lunging, and bridging play a big role in determining how you move, how you transfer loading, and how you absorb shock during high-force or high-velocity sport actions. For this reason, master the basics and learn proper form before moving on to more challenging exercise variations.

SUMO SQUAT



EXECUTION

1. Take a very wide stance—about two times shoulder width—and flare your feet, placing your arms in the mummy position across your upper body. Most people will gravitate toward a 45-degree flare but some prefer a straighter foot angle, depending on their hip anatomy.
2. Squat by sitting back, leaning your torso forward and driving your knees outward throughout the movement.
3. Descend until your thighs are parallel to the ground. Rise to a standing position.

MUSCLES INVOLVED

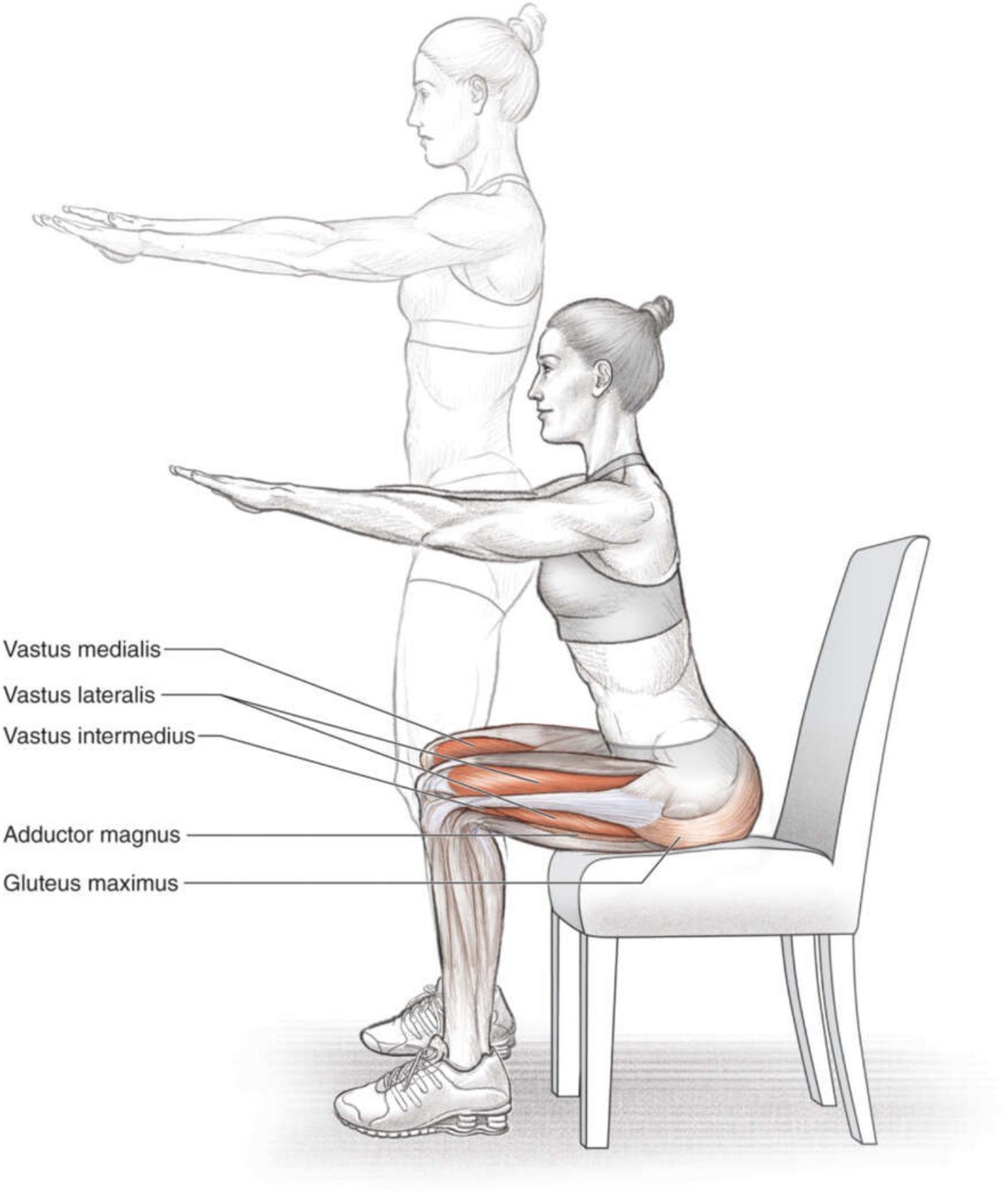
Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

The sumo squat is an excellent exercise because it teaches you to squat using more than just the quadriceps. In this case, the hip adductors and glutes come into play more because of the wider base and greater loading on the hips because you are sitting back. Keep your chest up and get a nice stretch in your hips at the bottom of the movement.

BOX SQUAT


Vastus medialis
Vastus lateralis
Vastus intermedius
Adductor magnus
Gluteus maximus

EXECUTION

1. Stand with your feet wider than shoulder-width apart and your feet flared to your preference. Stand very close to the edge of a sturdy box, bench, chair, step, or stool.
2. Initiate the movement by breaking at your hips and sitting back, keeping your chest up, your knees out so they track over your toes, and your shins perpendicular to the floor. Remember to feel the weight on your heels.
3. Pause for a moment while sitting on the box and then rise, making sure to squeeze the glutes to lockout.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

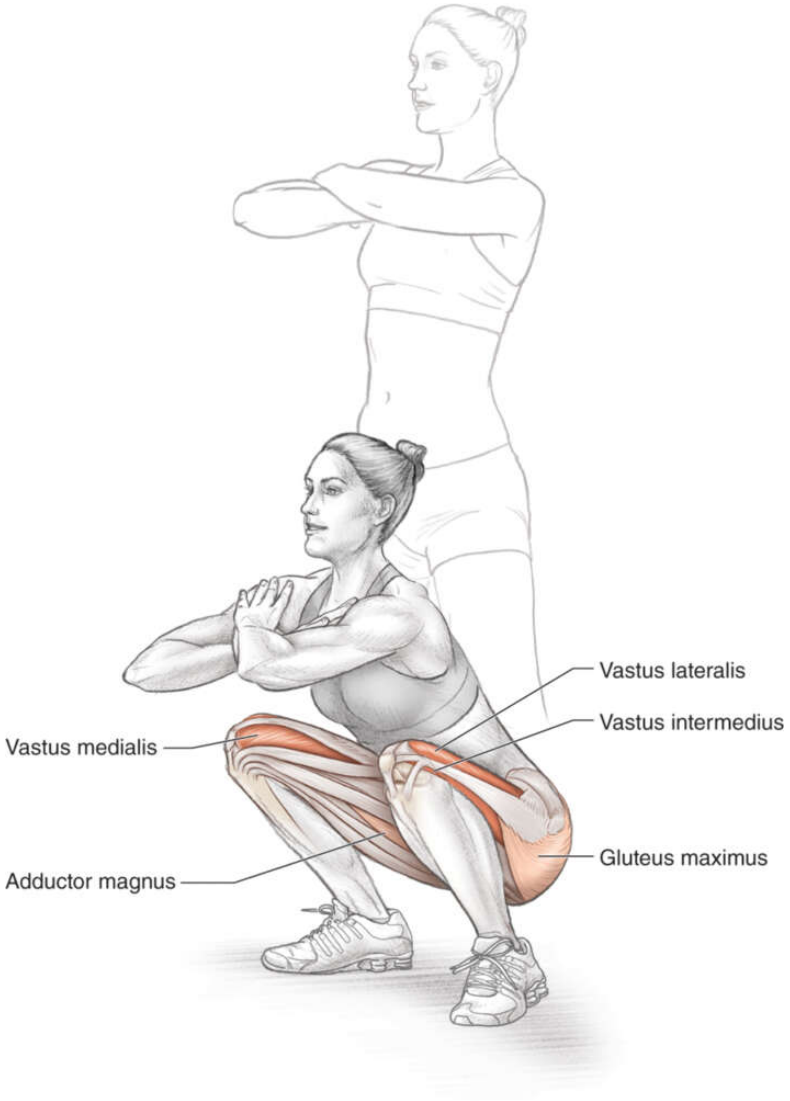
The box squat is the fundamental squat pattern you should master before attempting other types of squats. This squat pattern teaches you how to sit back and use your hips. It also teaches you to keep the knees out to prevent them from caving in during the movement. Keep your chest up and push through your heels throughout the movement. Most people can start with a box height that puts their thighs parallel to the ground when seated. Less-fit people need to start with a box that's a bit higher, and athletic folks can go right to the low box squat. It is critical that you learn to use the hips while squatting because this practice will transfer to jumping and agility performance on the field, which will spare your knees and allow for greater explosiveness.

VARIATION

Low Box Squat

The low box squat is performed with a sturdy box that is about 12 inches (30 cm) high, give or take an inch or two. Although your knees will travel forward a bit and you will not maintain vertical tibias (shins perpendicular to the ground), the goal is still to sit back and use the stronger hip extensor muscles rather than rely mostly on the quadriceps for performance.

FULL SQUAT



EXECUTION

1. Stand with a narrow to medium stance with your feet flared. Most people find a 30-degree foot flare most comfortable, but this depends on individual hip anatomy. Place your hands in a mummy position, crossed in front of your body.
2. Initiate the movement by simultaneously breaking at your knees and hips, dropping straight down. Keep your weight on your whole foot, keep your chest up, and force your knees out of the bottom of the movement so that your knees track over the middle of your feet.
3. Descend as deeply as possible while keeping a flat lower back. Rise to a standing position.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

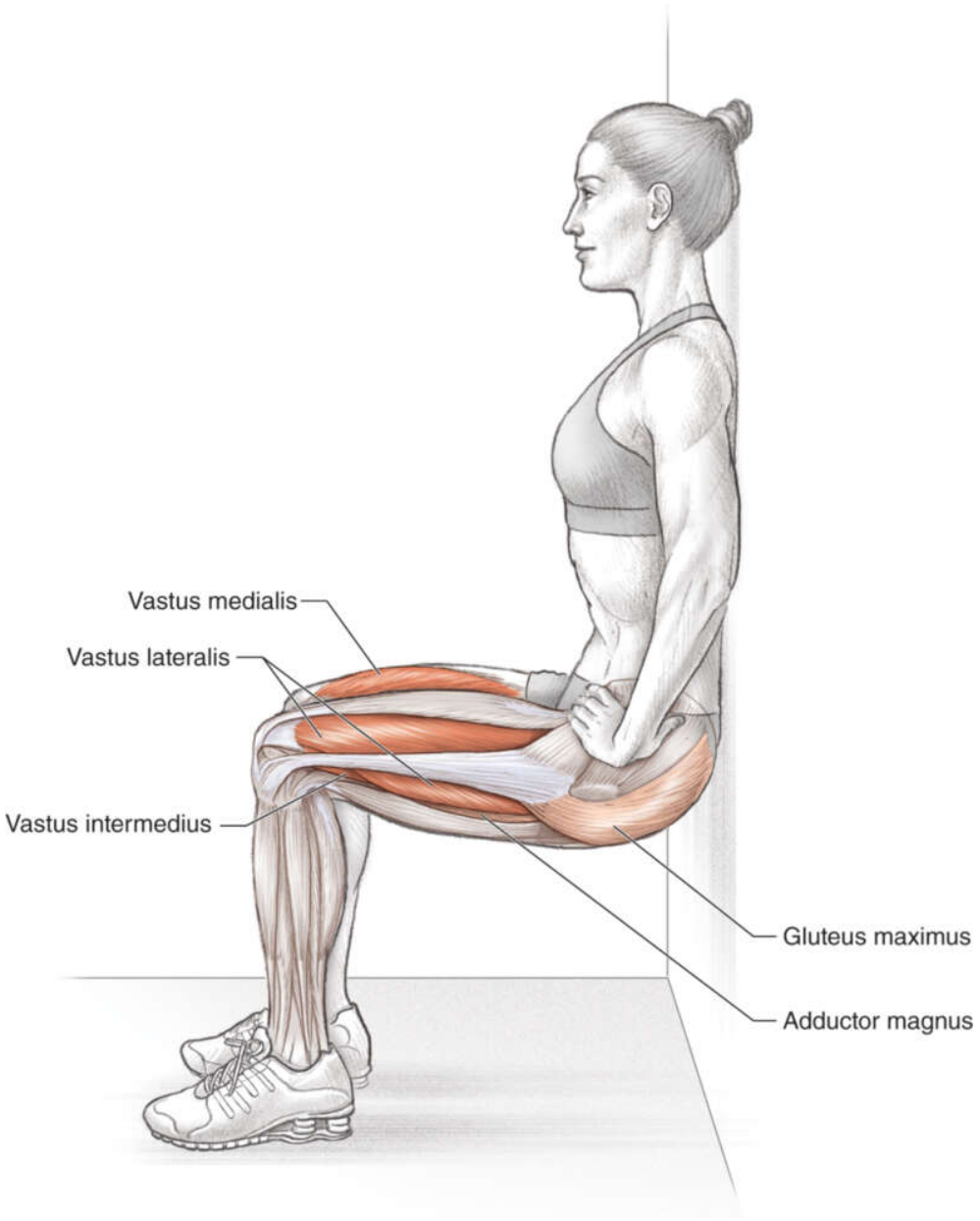
The full squat is a seemingly simple exercise, but it requires considerable ankle dorsiflexion flexibility, hip flexion flexibility, and thoracic extension flexibility. This means that your knees must be able to travel forward pretty far at the bottom of the movement without rising onto the toes, the hips need to be able to sink low with no rounding of the low back or tucking of the pelvis, and the upper back needs to stay tight to prevent upper-back rounding. For this reason, many people find that they cannot perform this movement until they increase their mobility. The full squat also requires sufficient core and hip stability, so be patient and focus on quality not quantity. As time goes on, full squats will become easier, but take your time working into them and building the requisite flexibility and strength to perform the movement correctly. Your hips will sink between your knees, which are forced outward during a proper full squat.

VARIATION

Heel Elevated Full Squat

If you struggle with achieving depth with the full squat, try elevating your heels onto a block. In addition, put your arms out in front of you. This will allow you to stay very upright. This is a great variation for people who naturally struggle with squat form. Over time, it will help you progress to other squat variations.

WALL SQUAT ISOHOLD



EXECUTION

1. Lean your back against a wall with your feet in front of you and your hands on your hips.
2. Lower your body until your hips reach a 90-degree angle and your thighs are parallel to the ground. Your knees are at a 90-degree angle with your shins perpendicular to the ground and your feet flat on the ground.
3. Hold for the desired amount of time: 30 seconds for beginners and up to 120 seconds for advanced.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

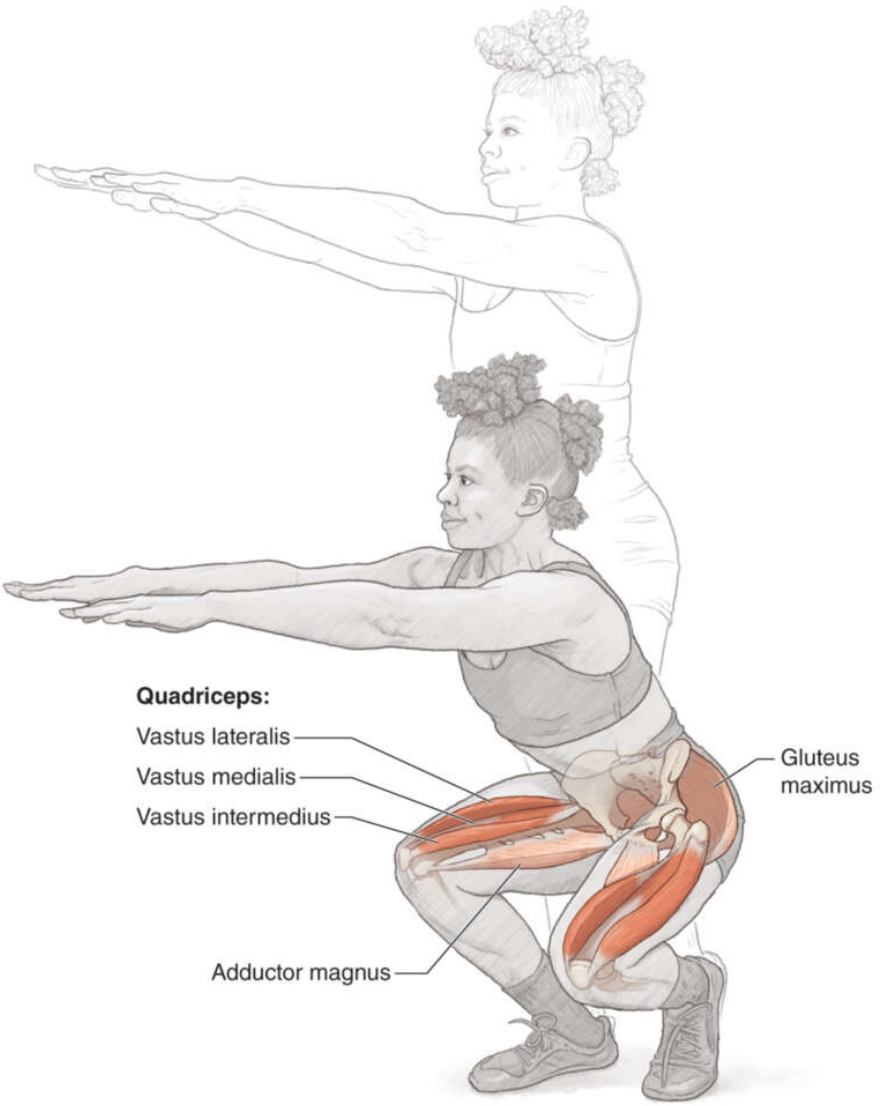
The wall squat isohold serves as a fundamental quadriceps endurance exercise. You can perform it anywhere you find a wall. Keep perfect posture throughout the duration of the set by keeping your chest up and sitting tall. Add variety to this exercise by changing the hip angle during the set. For example, start at a more difficult hip angle that places your hips lower than your knees, then move to a thigh-parallel position as the set gets challenging, and finally move to a hips-higher-than-knees position.

VARIATION

Wall Squat March

Once the wall squat isohold becomes easy, make the exercise more challenging by performing marches. You'll probably need to start with your hips higher than your knees because this is not an easy variation. Over time, you should be able to perform the movement from a 90-degree hip angle. Simply raise one leg off the ground and hold for time, then switch to the other leg. Hold for time, then switch to the other leg. Alternate from one leg to the other several times to fatigue the quadriceps.

B-STANCE SQUAT



EXECUTION

1. Stand in a staggered stance with the toes of your back foot placed at the heel of your front foot, angled slightly outward.
2. Keeping your hands out in front of you, shift your body weight slightly toward the side of the front foot and squat down to at least a parallel thigh position.
3. Rise to the starting position. Switch legs and repeat.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

The B-stance squat, also called a *kickstand squat* or *staggered-stance squat*, is a great exercise for building single-leg strength. It's not as challenging as a step-up or Bulgarian split squat, so it can

be used to prepare you for those movements. Make sure to keep most of the weight on the front leg; aim for 70 percent of your weight on your front leg and 30 percent on your rear leg and think of the back leg as a stabilizer for balance.

SINGLE-LEG BOX SQUAT

EXECUTION

1. Stand in front of a sturdy box, bench, chair, step, or stool, with your hands in front of your body.
2. Standing on one leg, sit back and down onto the surface, keeping your chest up and your spine rigid. The knee tracks over the midfoot as you push through the heel.
3. Lift your arms for counterbalance. Pause on the box for a moment, then rise to return to the starting position.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

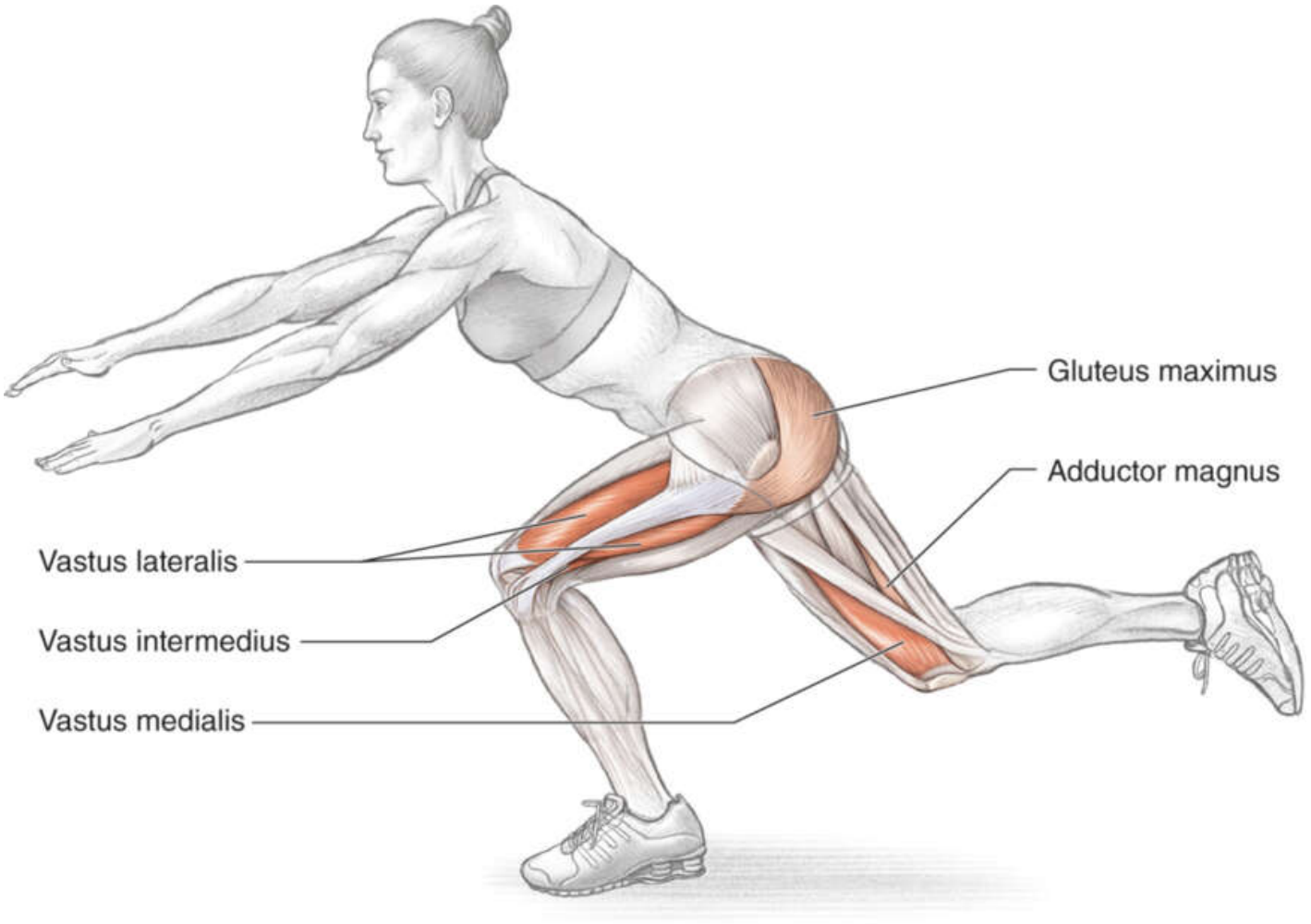
Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

The single-leg box squat is an effective single-leg movement that allows you to adjust for difficulty

by simply changing the box height. Beginners need to master the double-leg version before moving on to the single-leg version. Once you are proficient in the double-leg version, begin performing the single-leg version with a high box to allow you to learn proper technique. Do not let your knee cave in or out. Raising the arms during the movement serves as an effective counterbalance, shifting the burden away from the knees and onto the hips.

SKATER SQUAT



EXECUTION

1. Stand on one foot and place your hands in front of your body.
2. Sit back and down, breaking at your hips and knees while leaning forward at your trunk.
3. Descend until the knee of the nonworking leg approaches or touches the ground. Stand up to return to the starting position. Perform all the repetitions with the weaker leg first and then switch and repeat with the stronger leg.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

The skater squat is a phenomenal lower-body exercise that works your thighs and hips thoroughly. Raise your arms to provide counterbalance and lower yourself all the way until your back knee touches or skims the ground, if possible. You can place a pillow on the ground so your knee does not smash into the floor. If you are new to exercise, you likely will need to do partial squats and

gradually add depth over time.

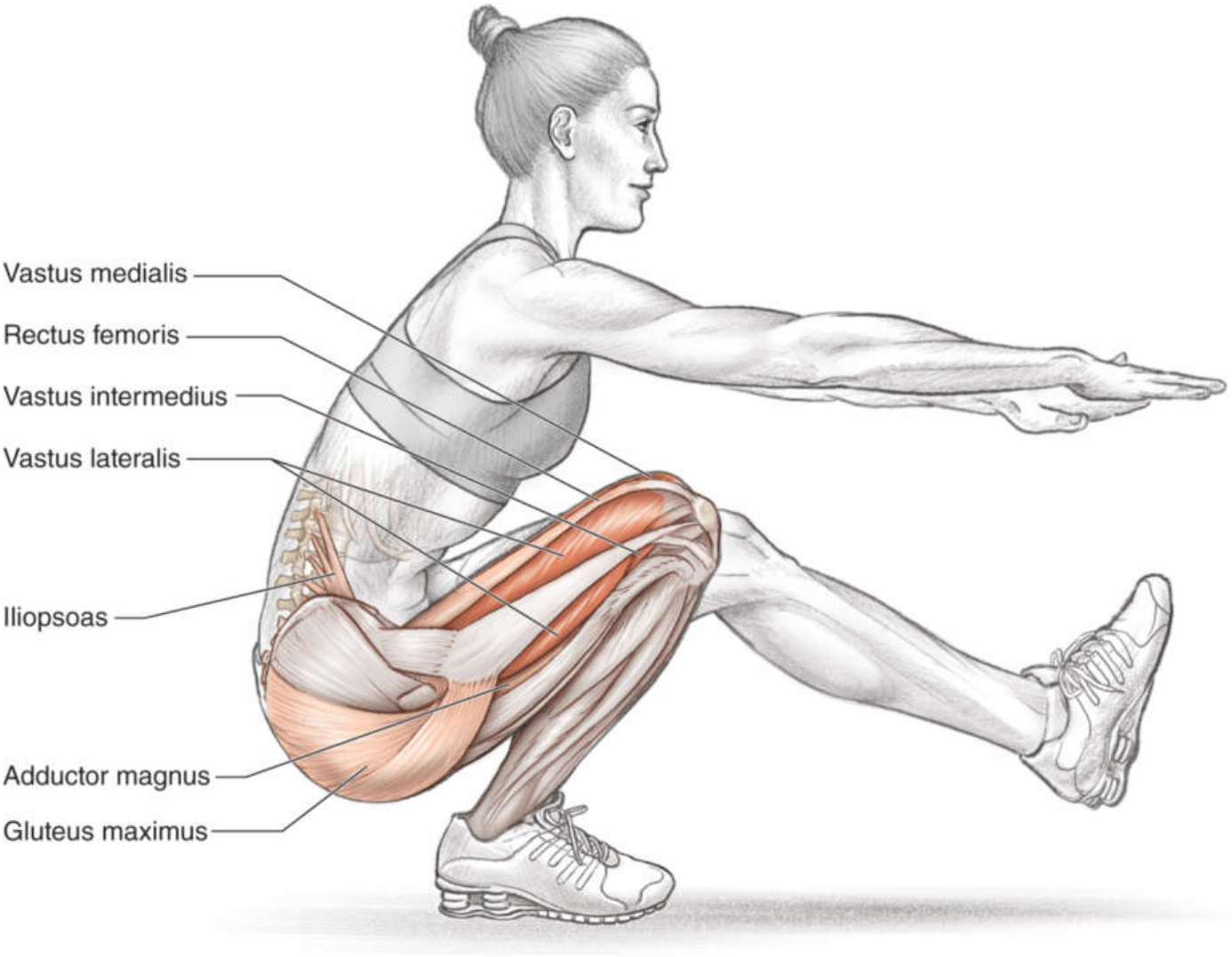
Because most sports are played on one leg at a time, it makes sense to include a lot of single-leg exercises in your regimen. In general, single-leg exercises challenge the lateral and rotary stability of the hips and require coordination of muscles such as the hip adductors, hip abductors, hip rotators, quadratus lumborum, and multifidus to prevent lateral shifting or twisting during the movement.

VARIATION

Glute Dominant Skater Squat

To make the skater squat more glute dominant, hold on to something for support such as both sides of a door knob, a railing, or a pole (not shown). Sit far back and lean significantly forward, striving to keep the shin on the front leg vertical and reaching a parallel thigh position. To create the greatest stretch on the glutes, adjust the placement of your planted foot so that you can barely reach the support, and slowly lower into the deepest part of the movement. Don’t touch down; reverse the movement in midair and then repeat with the opposite leg.

PISTOL SQUAT



EXECUTION

1. Stand on one leg.
2. Sink down by breaking at your hips and knees simultaneously. Raise your arms, flex the hip of the nonworking leg to keep the foot off the ground, keep your chest up, and push through your heel.
3. Descend until full depth is reached and then return to standing position.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus, rectus femoris, iliopsoas

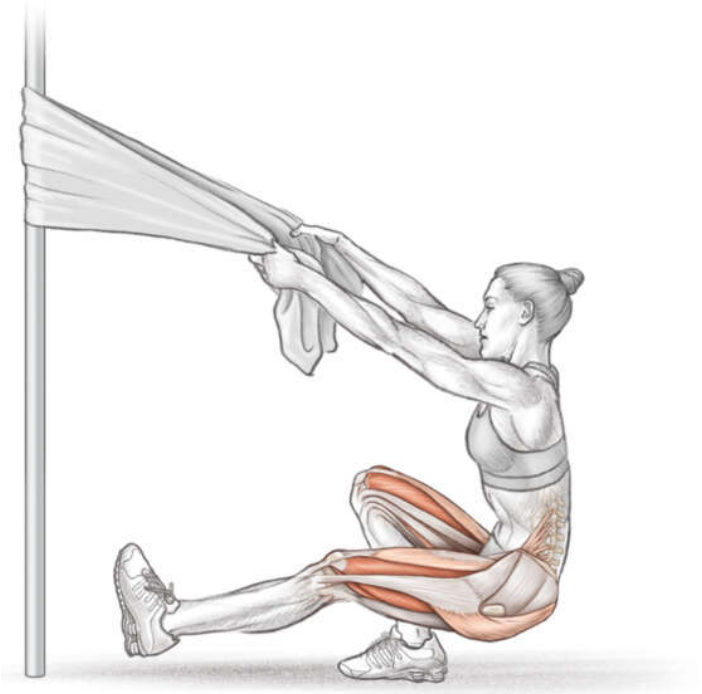
EXERCISE NOTES

The pistol squat is likely the most challenging bodyweight exercise for the lower body. It requires high levels of hip and lumbopelvic stability, glute and quad strength for the working leg, hip flexor

strength and flexibility in the nonworking leg, balance, and coordination. Many people sink all the way down on this movement until their butt touches the back of their calves. If you cannot go all the way to the floor, it's okay to stop short and do a partial squat or to just do the lowering phase on one leg and lift back up with both legs. You may also stand on a box so that the front leg can angle downward more; some people much prefer this method.

VARIATION

Sheet Pistol Squat



Initially, most people are not nearly strong or coordinated enough to be able to perform pistol squats. The pistol squat is a very challenging lower-body movement, and most of us need assistance to be able to perform the movement properly. It is possible to wedge a towel in a door or around a pillar to provide the assistance necessary to perform the lift. This is still an excellent movement, even though it involves assistance. Even if you can perform regular pistol squats, you may wish to do this variation for higher reps.

SPLIT SQUAT

EXECUTION

1. Get in a split-stance position that is wide enough that your front shin is close to vertical at the bottom of the lunge. Put your hands on your hips and make sure your feet are pointed straight ahead.
2. Keeping your torso upright, descend until your back knee approaches or touches the ground.
3. Return to the starting position.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

The split squat is easy for many people. Master this basic lunge pattern before you move on to more challenging variations. Learn to feel the working glute propelling your body up as you rise out of the squat. Keep your trunk upright and move straight up and down. You can place a folded towel or pillow beneath the rear knee so it does not bang against the floor. Keep most of your weight on your front leg rather than on your rear leg. For more glute activation, keep your shin vertical and lean forward. For more quad activation, take a narrower stance, let your knee migrate forward, and stay more upright.

VARIATIONS

Bulgarian Split Squat

The Bulgarian split squat has gained popularity over the past decade and is indeed an amazing exercise. Stand in front of a step, stair, couch, bed, table, stool, or weight bench. Reach back with one foot, resting the top of your foot on the top of the surface. You can choose “laces up,” as shown in the illustration or “laces forward” with the toe planted, depending on your preference. With a slight forward lean and standing with most of your weight over the front foot, sink the knee of the rear leg down and back diagonally while just using the back leg for stability. Descend until the back knee almost touches or touches the ground. Rise to the starting position.

For a more glute-dominant Bulgarian split squat, take a longer stride, sitting back to keep the shin of the front leg vertical and leaning forward substantially. For a more quad-dominant Bulgarian split squat, take a shorter stride and stay upright, letting your knee travel far over your toes. You should do most of your sets with your form in between these two extremes.

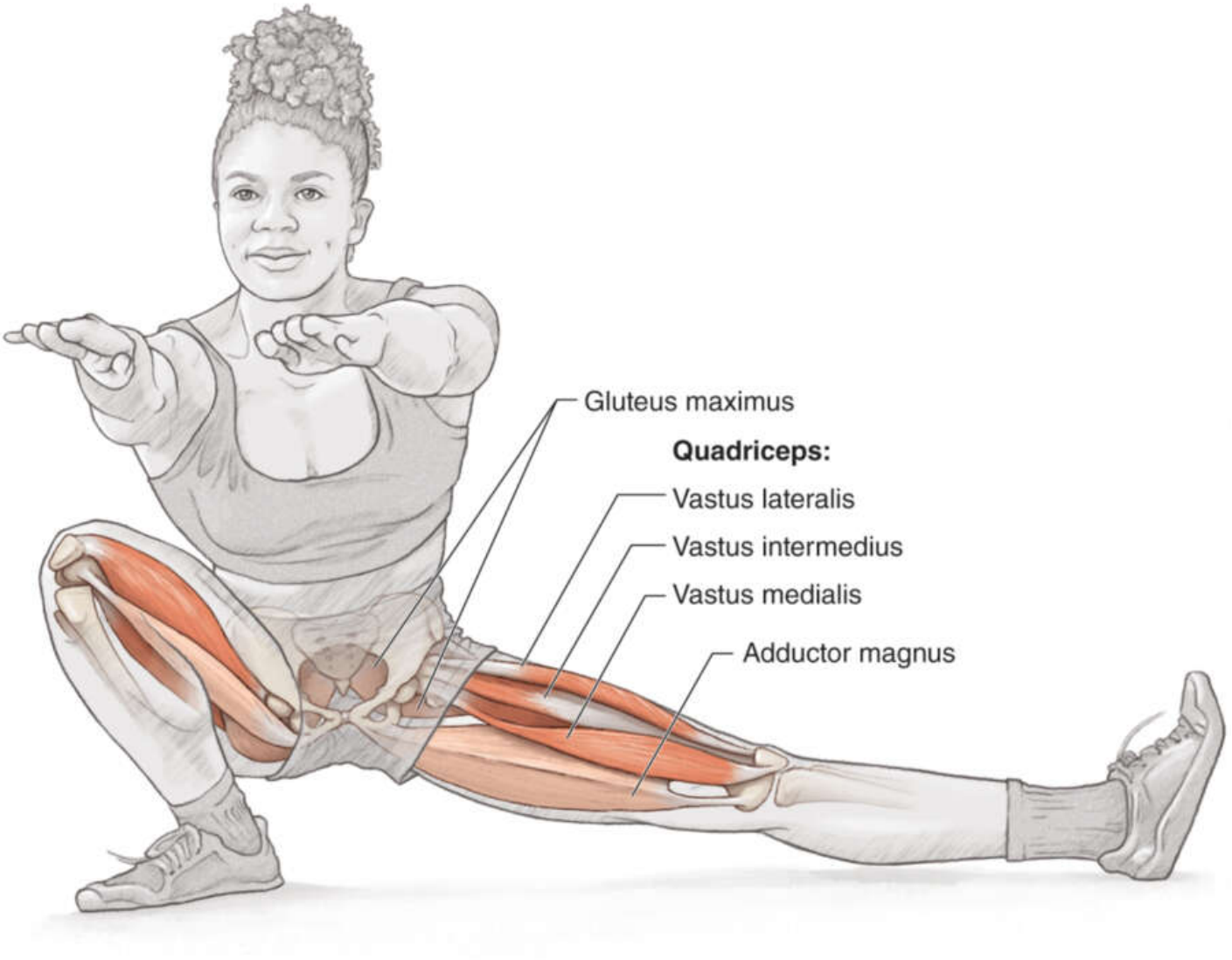
Many exercisers struggle to achieve the same number of repetitions on each leg. For example, they might do 15 repetitions with the left leg and then struggle to complete 15 repetitions with the right leg because their right rectus femoris was considerably stretched while the left leg was being

worked, thereby weakening the right leg and impairing its performance during the subsequent set. For this reason, I recommend starting with the weaker leg (you should do this for any unilateral exercise) and resting about a minute between sides so you are not impaired by stretch-related weakening.

Deficit Bulgarian Split Squat

Once you master the traditional Bulgarian split squat, you may elevate the front foot onto a sturdy box or step. This allows you to sink deeper and move through even greater ranges of motion in the knee and hip joints. This variation is known for inducing serious quad soreness because it provides a considerable stretch load to the muscle at the bottom of the movement. Place a pillow or folded towel under the knee of the rear leg so it does not crash against the floor.

COSSACK SQUAT



EXECUTION

1. Stand with your arms held in front and feet close together.
2. Take a long step laterally and feel the adductor of the support leg as you sink back and down with the hips.
3. Continue to sink on the primary working leg as you externally rotate the hip of the other leg to turn your foot toward the ceiling. Sink as low as possible.
4. Return to standing and repeat in the other direction.

MUSCLES INVOLVED

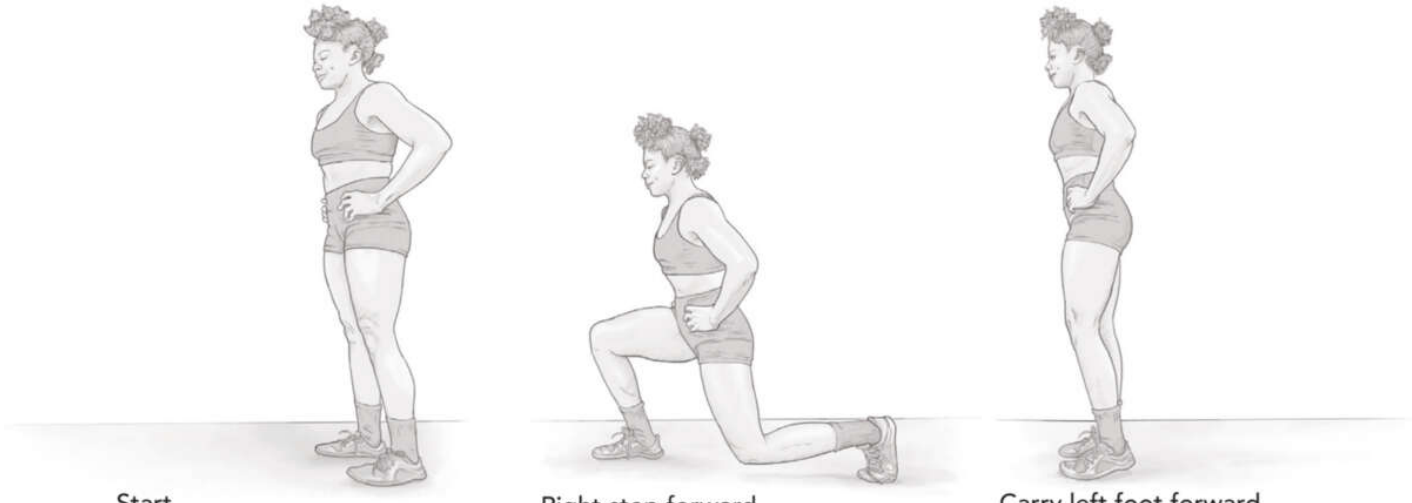
Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

Once you've mastered the side lunge, you may take it a step further by learning the Cossack squat. With this variation, you turn the foot of the support leg upward via external hip rotation as you continue sinking down into the hip of the leg primarily being worked. This is an incredible exercise for single-leg strength and hip mobility. Keep the arms forward and raised out in front of you to make this exercise more hip-dominant.

WALKING LUNGE



EXECUTION

1. Stand with your hands on your hips. Take a long step forward.
2. With a slight lean, descend until the knee of the back leg almost touches the ground.
3. Propel yourself upward and forward and, without pausing, switch to the opposite leg and repeat the action. You may walk in line and imagine that you are walking a tightrope or you may zigzag slightly by stepping outward a bit on each rep.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

The walking lunge is my favorite exercise for building glute strength in a hips-flexed position. You don't see it being performed that often in gyms because it requires a free walkway. For this reason, reverse lunges or split squats are more common. However, the walking forward aspect of the exercise seems to add even more challenge to the glutes, because this exercise seems to cause the most glute soreness, particularly in the lower gluteus maximus. The adductor magnus also takes a serious beating with this movement because it's a powerful hip extensor in a deep hips-flexed position. I don't program as many sets because I don't like it when my clients get too sore; they typically train legs three times per week and need to recover in 48 hours.

VARIATION

Forward Lunge

One way to add difficulty to the lunge pattern is to lunge forward and then spring back to the starting position. This places extra emphasis on the quadriceps as they produce increased force to propel you back and up to standing. This variation is excellent for athletes because it builds adsorptive, eccentric quad power as well as propulsive, concentric quad power. I recommend taking a shorter stride with this variation to further stress the quads.

REVERSE LUNGE

EXECUTION

1. Stand with your feet pointed straight ahead and your hands on your hips.
2. Keeping most of the weight on the front leg, step back and lean forward to an approximately 30-degree trunk angle, sinking into the working hip and descending until your back knee approaches or touches the ground. In the bottom position, the torso

should be nearly vertical.

3. Rise to the starting position. You may do all the repetitions on one leg then switch to the other leg or alternate between legs from one repetition to the next.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

While the front lunge places additional emphasis on the quadriceps, the reverse lunge places extra emphasis on the glutes. It is not necessary to keep an upright torso during the lunging motion because the forward trunk lean increases the hip range of motion and torque loading on the hips. Try to feel the glute of the front leg absorbing the force and helping to spring your body back into position. I recommend taking a longer stride with this variation to further stress the glutes.

VARIATIONS

Deficit Reverse Lunge Low

Once you master the reverse lunge, you can increase the exercise's difficulty by standing on a step, sturdy box, or short table that is approximately 6 to 10 inches (15-25 cm) high. The same rules apply, but this variation will increase your hip range of motion and provide a greater stretch to the working glute. Beware the following day. This exercise may impair your ability to sit down without appearing like an old man or woman. In other words, the stretch loading on the hips can produce serious glute soreness.

Deficit Reverse Lunge High

It is also possible to perform a deficit reverse lunge from a higher box. When performed in this manner, it can almost feel like a blend between a lunge and a step-up. Usually, we use a 16-inch tall (around 40 cm) bench to carry these out.

SLIDING LUNGE

EXECUTION

1. Stand with your feet pointed straight ahead and about shoulder-width apart, your hands on your hips and one foot on a paper plate. You also may use a commercially available sliding exercise disk or, on a slick floor, a small hand towel.
2. Keeping most of the weight on the foot that is not on the plate, slide the foot on the plate back and lean forward to an approximately 30-degree trunk angle, sinking into the working hip and descending until your back knee approaches or touches the ground. In the bottom position, the torso should be nearly vertical.
3. Rise to the starting position.

MUSCLES INVOLVED

Primary: Rectus femoris, vastus lateralis, vastus medialis, gluteus maximus

Secondary: Biceps femoris, semitendinosus, semimembranosus, adductor magnus, adductor longus, gluteus medius

EXERCISE NOTES

This is similar to the reverse lunge, except that in the sliding lunge, your foot always maintains contact with the ground. Many people prefer this variation over the reverse lunge, but it is up to the individual. I like the standard reverse lunge better, but give them both a try and judge for yourself. Both are great variations, and the lunge pattern is an essential pattern for comprehensive hip strength, so you cannot go wrong by performing both variations from time to time.

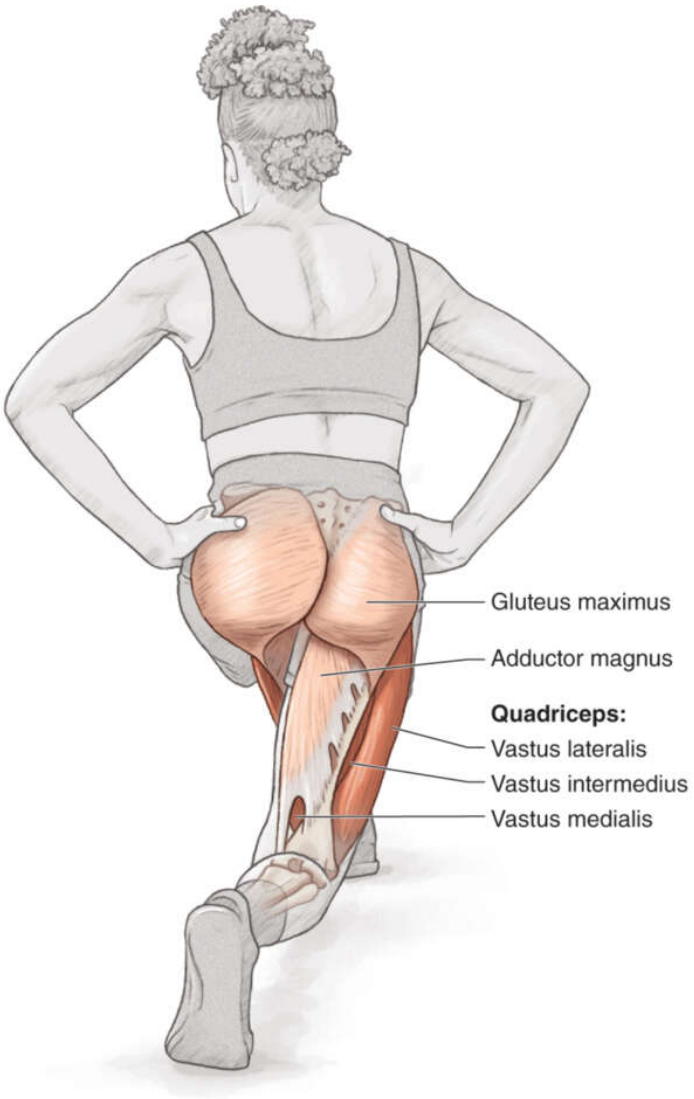
VARIATION

Sliding Kneeling Lunge

We recently came up with this movement, and it was an instant hit with my clients. Think of it as a kneeling squat but on one leg, only this variation allows you to sink even deeper. Kneel and hold on to a chair or incline bench with your back leg straight and your foot resting on a commercially available sliding exercise disk or, on a slick floor, a small hand towel.

Sink back and down while sliding the back leg rearward and getting a big stretch in this glute of the front leg. Push down on the front knee and shin to slide the back foot forward to rise back up to the starting position.

CURTSY LUNGE



EXECUTION

1. Stand with your feet pointed straight ahead and positioned close together with your hands on your hips.
2. Keeping your body oriented forward, step back and inward so that the hip of the front leg receives an extra stretch, sinking sideways into the working hip and descending until your back knee approaches or touches the ground.
3. Rise to the starting position.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

The curtsy lunge is a staple glute exercise that you should be performing regularly. The trick is to

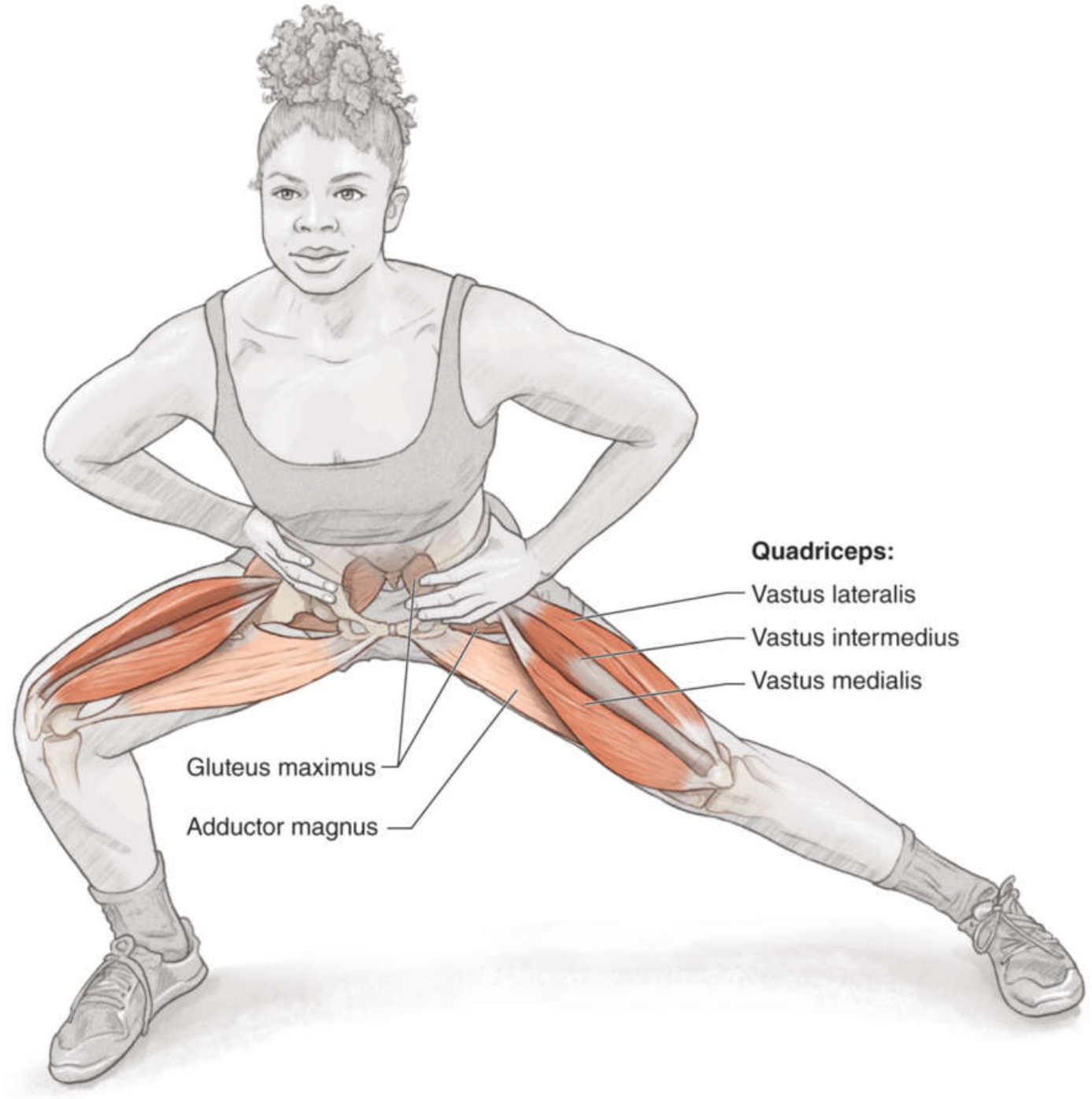
put an extra stretch on the glute by sinking into hip flexion, hip adduction, and even a little bit of hip internal rotation. Don't make the mistakes of rotating your torso, allowing the pelvis to drop laterally, or allowing the shin to angle outward too much. You don't want to go overboard with these; just a little bit of adduction to better stretch the working glute.

VARIATION

Deficit Curtsy Lunge

You may also perform curtsy lunges from a deficit by standing on a step. The same rules apply. Don't overdo the curtsy action. Just sink inward to increase the stretch on the gluteus maximus.

SIDE LUNGE



EXECUTION

1. Begin with your hands on your hips and your feet close together.
2. Take a long step laterally and feel the adductor of the support leg stretch as you sink back and down with your hips.
3. Propel yourself back to the starting position and repeat with the other leg.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

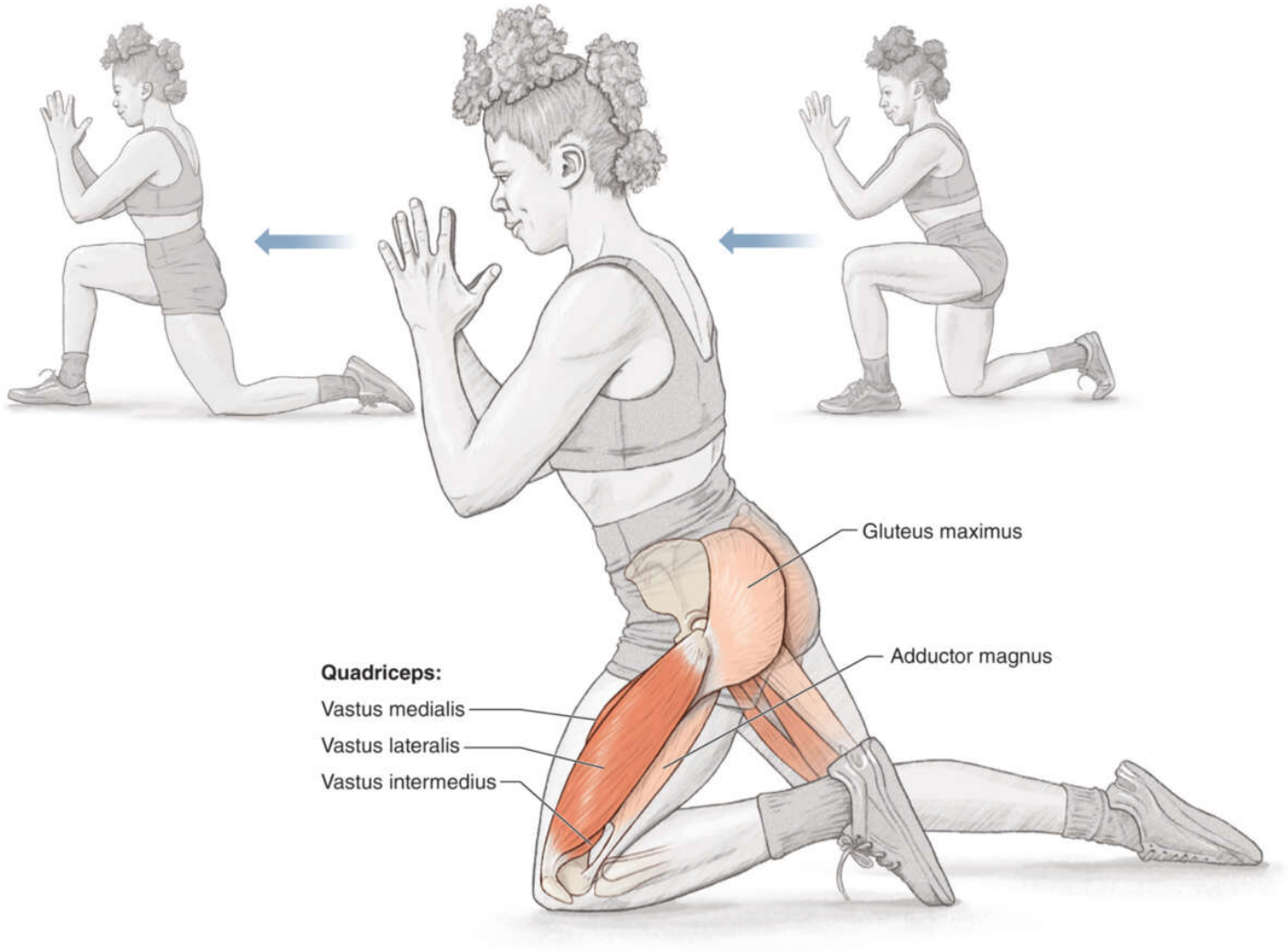
The side lunge, or lateral lunge, is a popular exercise used in strength and conditioning. It is thought that this exercise will help improve lateral agility from the side-to-side nature of the exercise; however, the dominant forces in this exercise are vertical. You're not maximally pushing laterally with the side lunge. For this reason, lateral plyos and agility drills are better suited for increasing lateral deceleration and explosive power. Regardless, the lateral lunge is similar to a B-stance squat, split squat, and lunge in that it's single-leg dominant. Yes, you have a supporting leg, but the primary leg does most of the work.

VARIATION

Sliding Side Lunge

You may prefer sliding side lunges to regular side lunges. Experiment with both and see which you like best. You also may use a commercially available sliding exercise disk or, on a slick floor, a small hand towel.

DUCK WALK



EXECUTION

1. Begin in a lunge position with your hands together in front, palms pressed together.
2. Pull with the front leg, bringing your knee down as you move forward and lifting the back leg forward until you are in a lunge position with the other leg in front.
3. Continue forward, switching legs, for the required distance.

MUSCLES INVOLVED

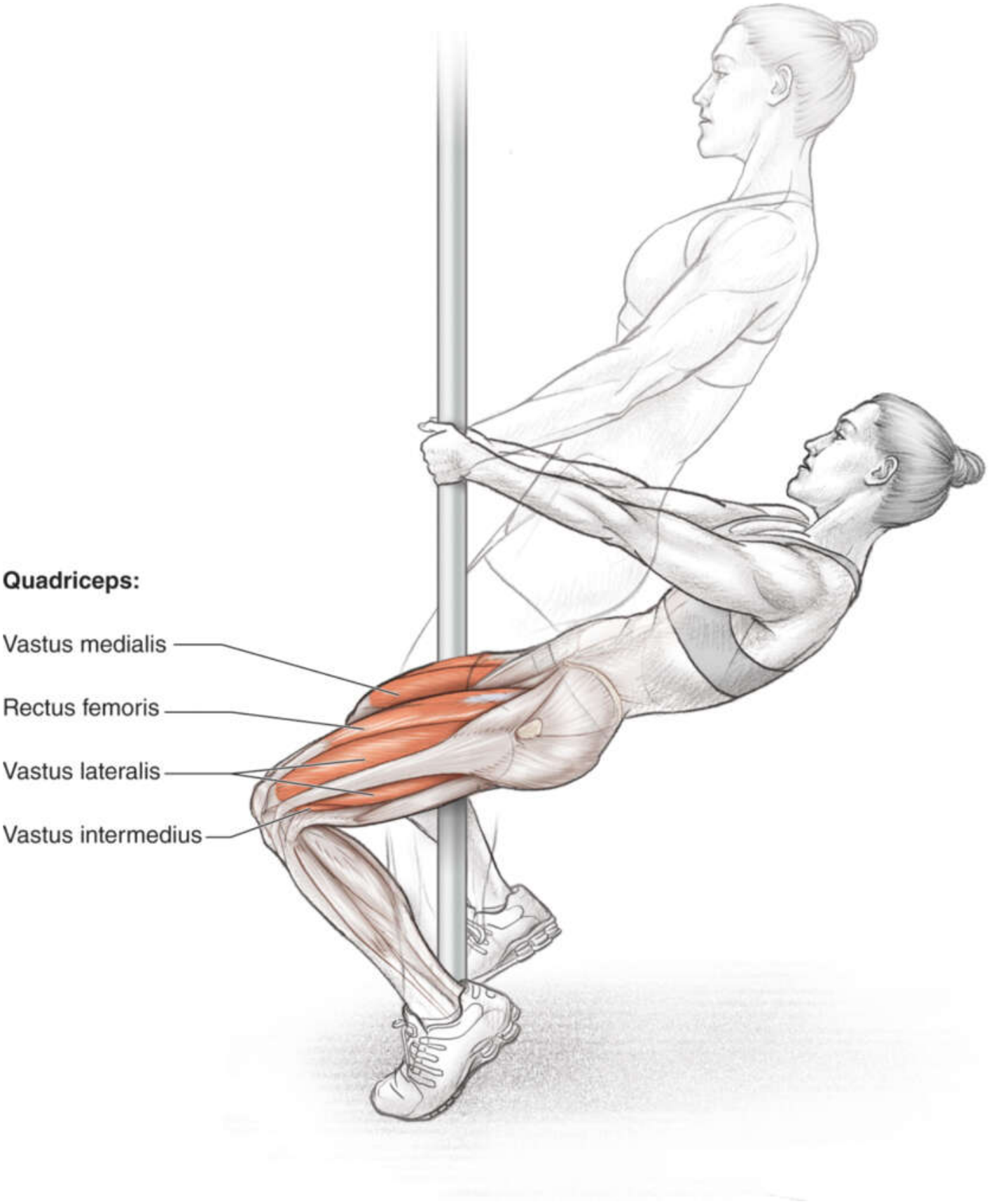
Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

Once you've mastered the walking lunge, you may wish to further increase the difficulty by performing the duck walk. Duck walks are common in the training of wrestlers and are great at improving deep range hip strength and stability. Think of it as a walking lunge whereby you cannot rise much, only enough to bring the rear leg back around and in front of your body.

SISSY SQUAT


Quadriceps:
Vastus medialis
Rectus femoris
Vastus lateralis
Vastus intermedius

EXECUTION

1. Begin in a standing position with a narrow stance. Grasp something in front of you for balance.
2. Descend by breaking at your knees and shifting them forward while leaning the torso back and rising onto your toes.
3. Descend until the desired depth is reached and then rise to return to the starting position.

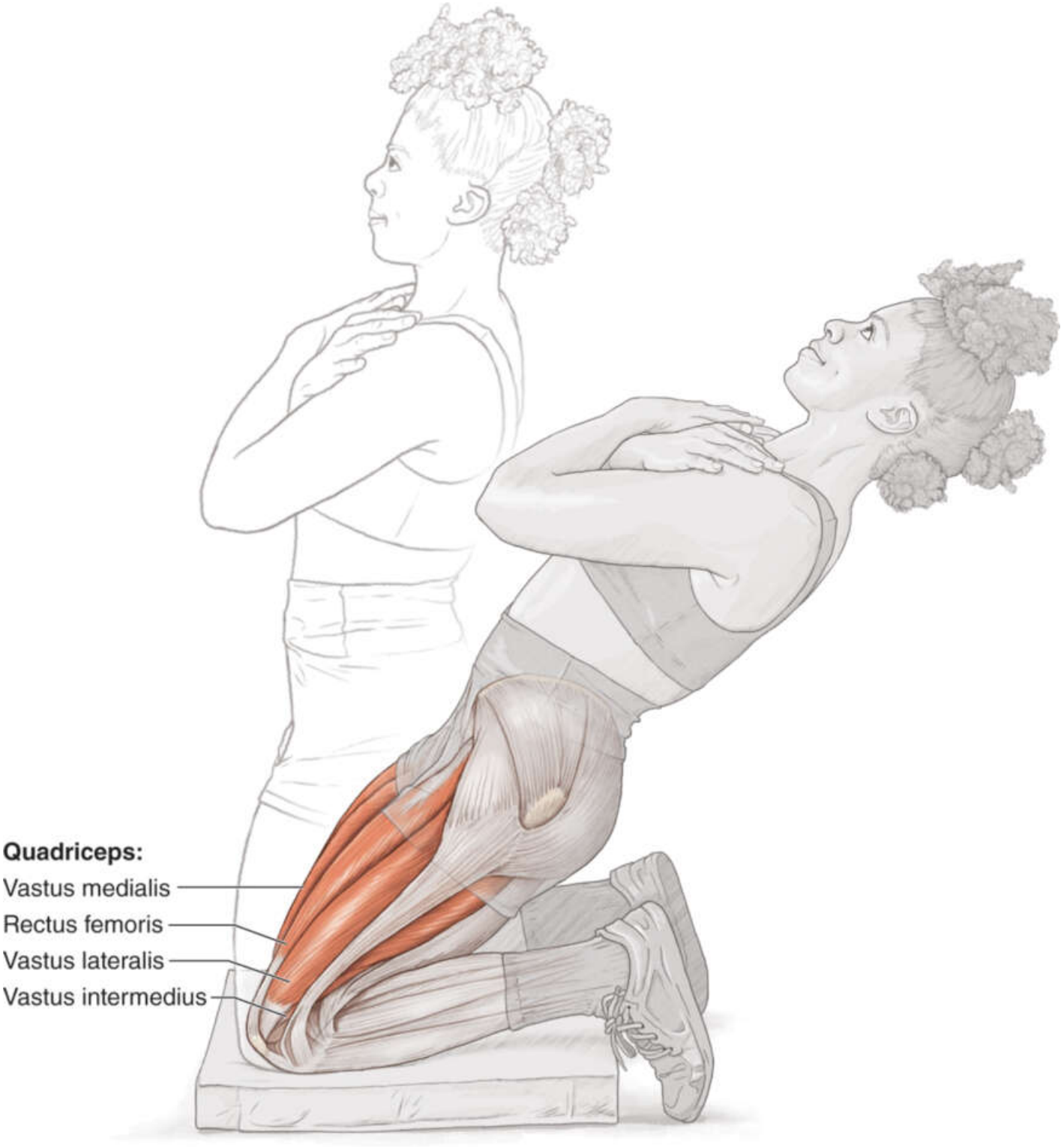
MUSCLES INVOLVED

Primary: Quadriceps (rectus femoris, vastus lateralis, vastus medialis, vastus intermedius)

EXERCISE NOTES

The sissy squat is a bodyweight leg extension because it targets the quadriceps and eliminates hip extensor involvement. Some people initially find this exercise problematic because it puts considerable pressure on the knee joint, so play it safe and ease your way into it. Descend only to a depth that feels comfortable in your knees and gradually increase the depth over time. Attempt to feel the quadriceps controlling the movement throughout the set. Keep the hips extended to lengthen the rectus femoris, which is worked especially well by this exercise.

REVERSE NORDIC CURL



EXECUTION

1. Kneel on a pillow or cushion with your arms crossed in front of your body.
2. With your hips fully extended, lean back and tilt the torso rearward as deeply as you can comfortably go.

3. Rise back up to the starting position. Strive to increase the range of motion over time.

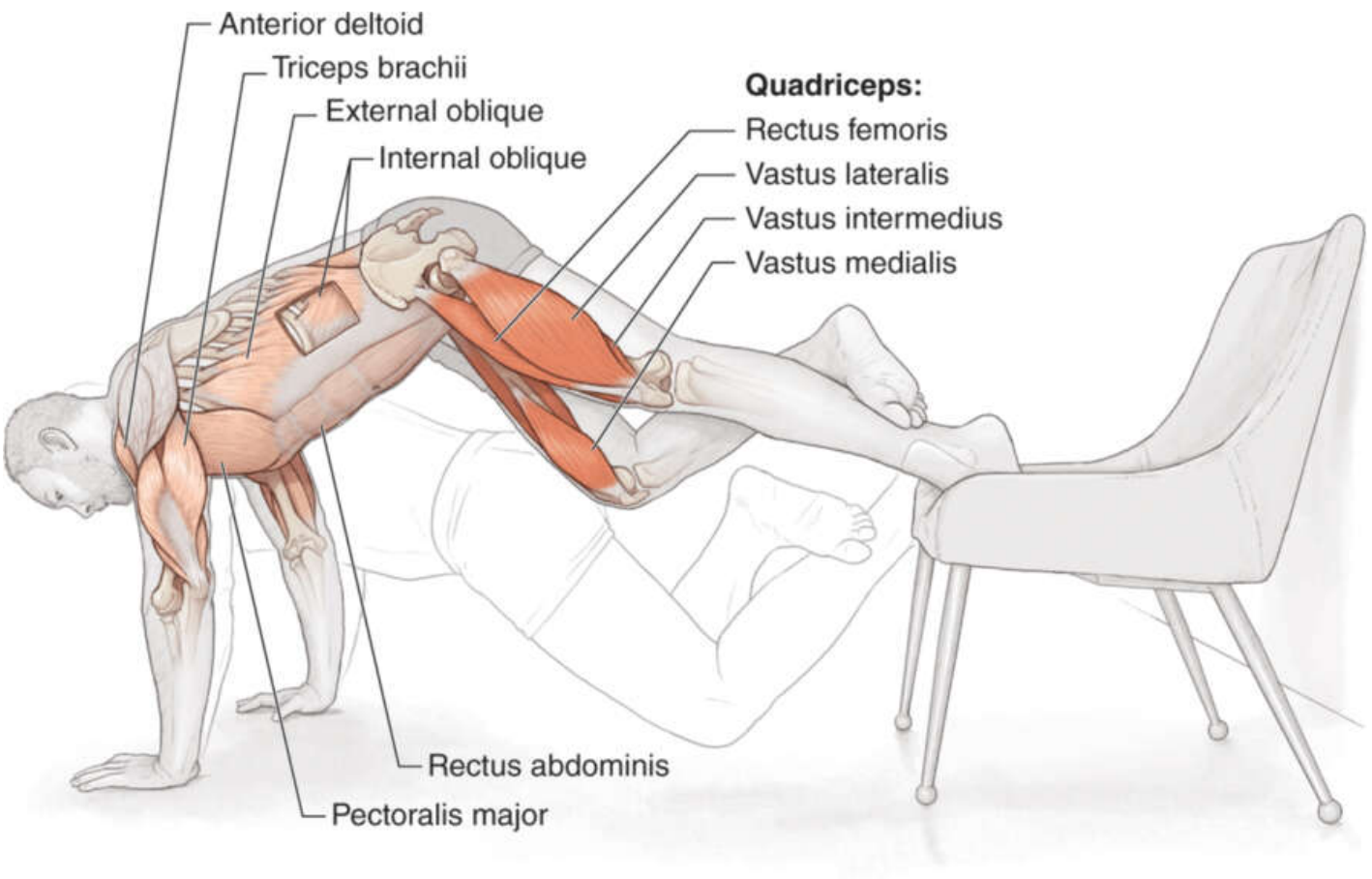
MUSCLES INVOLVED

Primary: Quadriceps (rectus femoris, vastus lateralis, vastus medialis, vastus intermedius)

EXERCISE NOTES

This exercise is a lengthened partial exercise for the quadriceps. It's a single-joint movement so it works the rectus femoris especially well. Over time, you'll be able to sink much deeper and place much more demand on the quads.

PRONE SINGLE-LEG LEG EXTENSION



EXECUTION

1. Begin in the top of a push-up position with your hands on the ground and the top (instep) of your left foot on a chair, table, or couch.
2. Cross your right ankle behind your left leg.
3. Bend your left knee to allow your hips to sink until your left knee almost touches the ground.
4. Lift up by extending your left knee and pushing your hips high while squeezing your left quadriceps.
5. Hold the top position briefly and then return to the starting position. Complete the desired number of repetitions and repeat on the other side.

MUSCLES INVOLVED

Primary: Quadriceps (rectus femoris, vastus lateralis, vastus medialis, vastus intermedius)

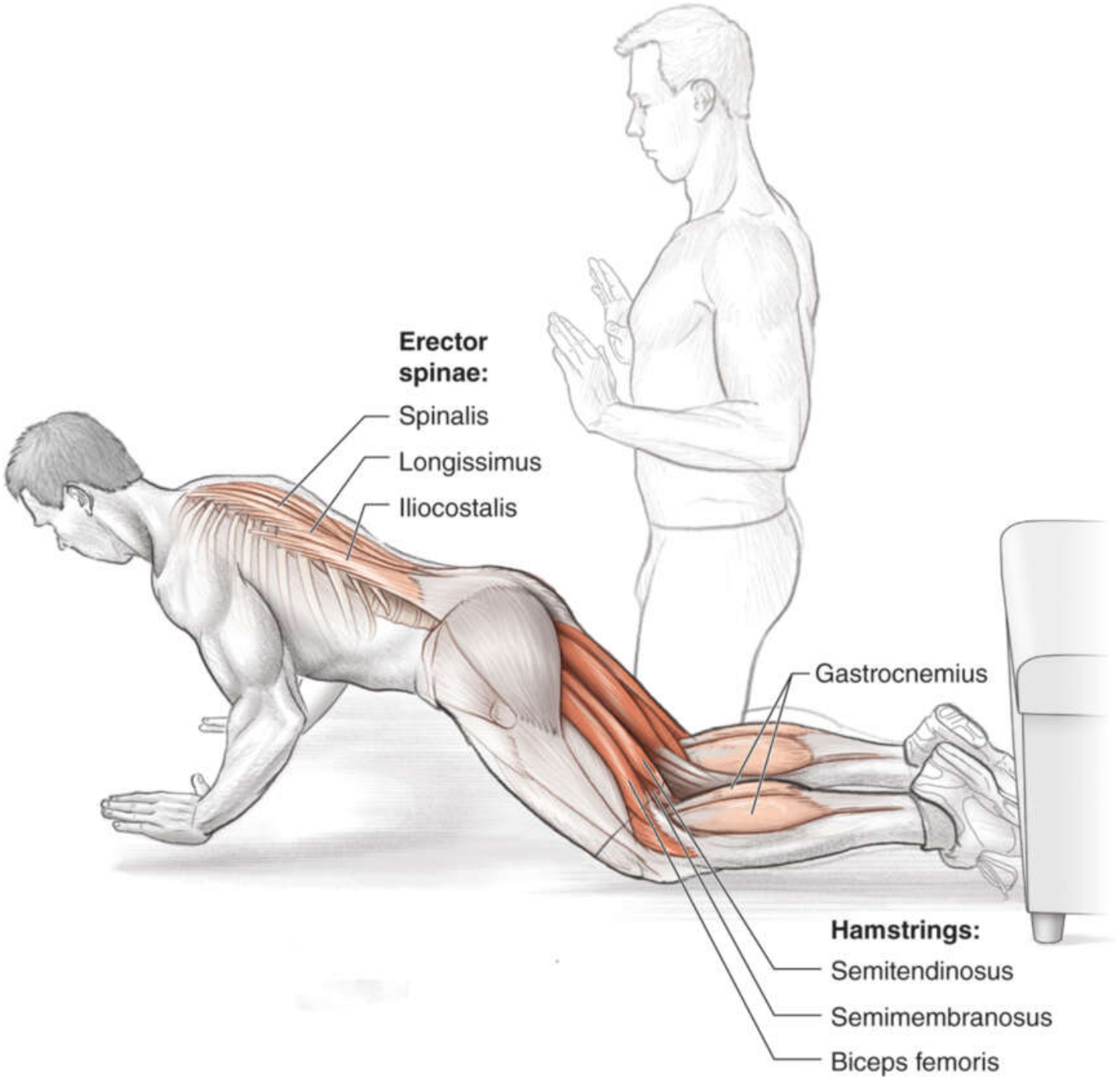
Secondary: Pectoralis major, triceps brachii, anterior deltoid, rectus abdominis, internal oblique, external oblique

EXERCISE NOTES

The prone single-leg leg extension works the quadriceps at a short muscle length, the perfect

complement to the reverse Nordic curl, which works the quadriceps at a long muscle length. You may want to rise onto the toes of the supporting leg at the top of the movement; try that modification to see if it feels better for you. This exercise is challenging because you're working your leg muscles while holding yourself in position with your upper body and core muscles, thereby delivering a metabolic bang for your buck.

NORDIC HAM CURL



EXECUTION

1. Find a rail, beam, or stable couch to wedge your feet under. Kneel on top of a pillow or cushion (not shown) to reduce pressure on your knees.
2. With an upright trunk, lower your body under control while keeping the glutes tight, making sure not to bend forward too much at your hips or allow your pelvis to anteriorly rotate too much.
3. At the bottom of the movement, catch yourself in a push-up position and spring back to the starting position, using your shoulder and arm muscles for assistance but

attempting to maximize the torque on your knee joint and trying to rely on the hamstrings for movement production.

MUSCLES INVOLVED

Primary: Hamstrings (biceps femoris [long and short heads], semitendinosus, semimembranosus)

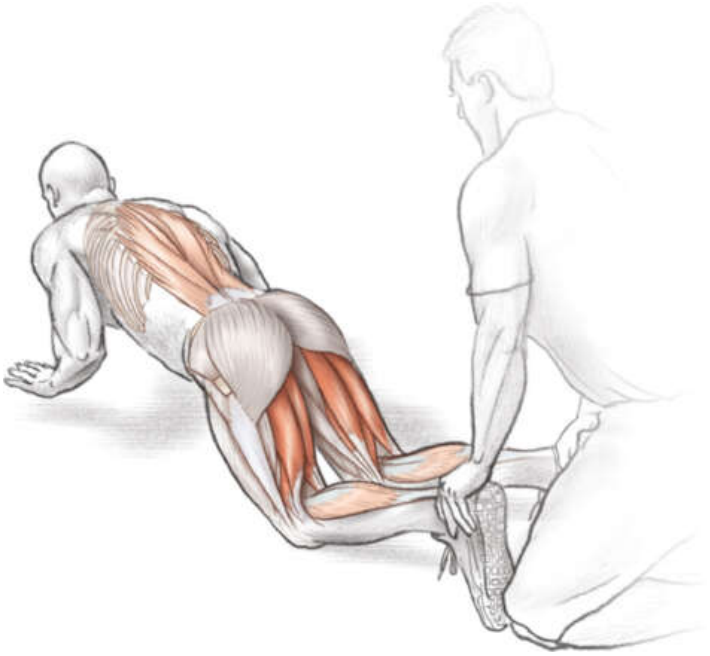
Secondary: Erector spinae (spinalis, longissimus, iliocostalis), gastrocnemius

EXERCISE NOTES

Think of the Nordic ham curl as a bodyweight leg curl. It is an effective and challenging hamstring exercise, and most beginners cannot consider performing it because of its requirement for tremendous hamstring strength. When first learning the movement, you will sink very fast, which is okay. Hold the proper position and attempt to lower your body slowly. Aim to increase your breaking point—the point at which your hammies give out—over time, and you will be able to perform the movement under control. This exercise targets the biceps femoris short head and the semitendinosus.

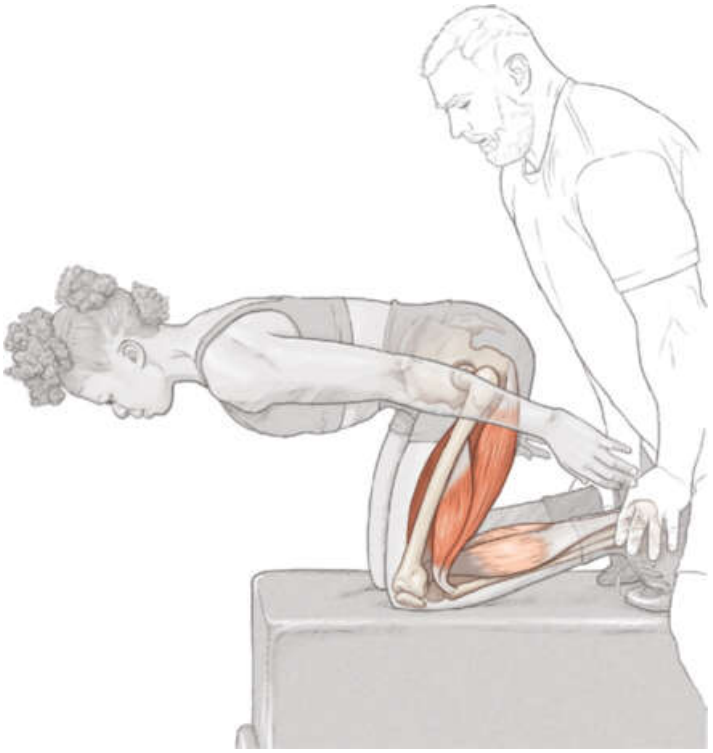
VARIATIONS

Partner-Assisted Nordic Ham Curl



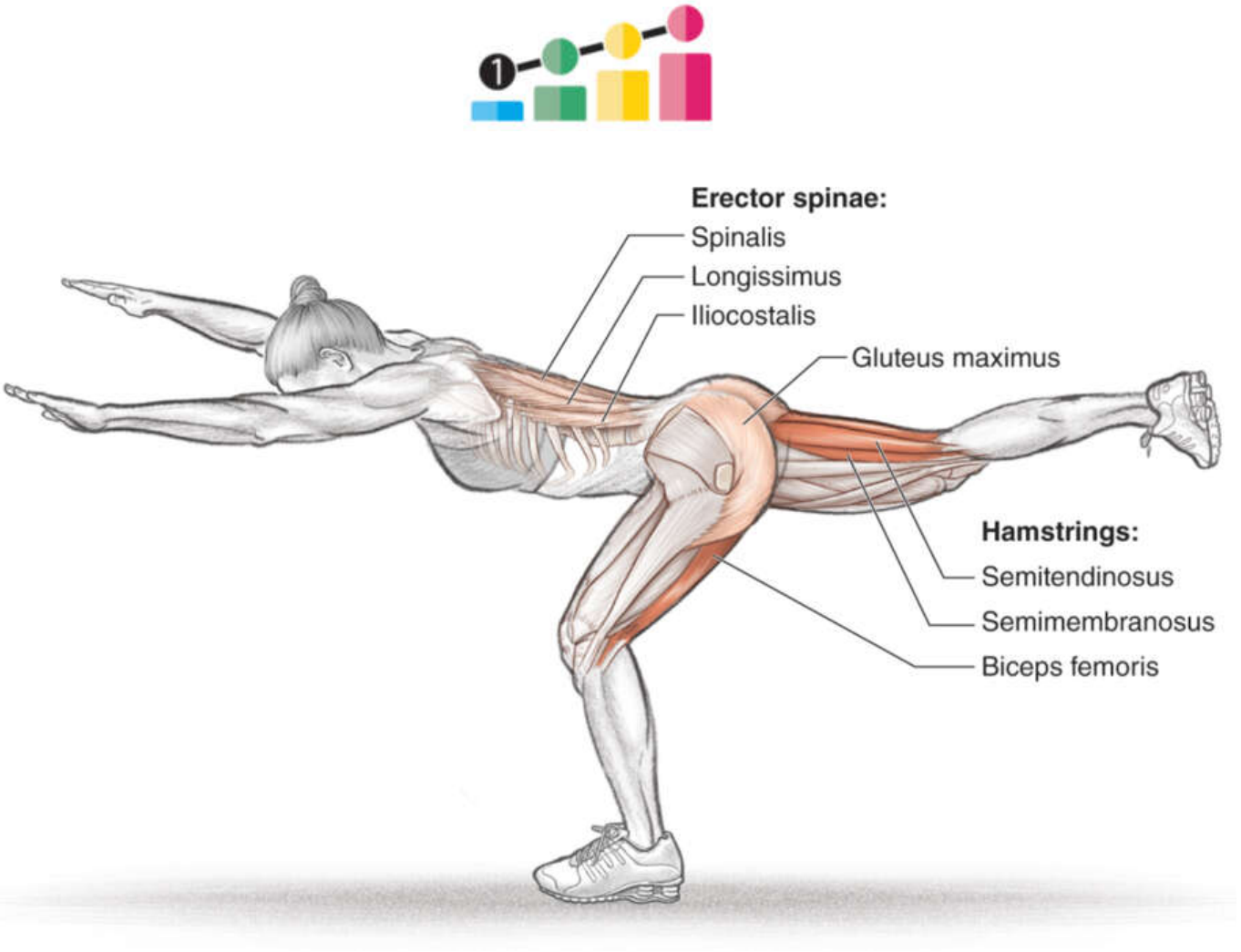
It helps to have a strong partner to assist with this movement. Have a partner hold the back of your ankles, bracing their body over your ankles and pushing down to hold you in position. Note the dorsiflexed ankle position; this is ideal. As your body descends, your partner will need to brace very hard and lean forward slightly to provide the required support to secure your body so all your energy goes into the exercise and isn't wasted trying to stabilize yourself. Lower your body slowly and push your body back to the starting position while trying to use your hamstrings as much as possible.

Partner-Assisted Flexed Nordic Ham Curl



If you have a partner and an elevated surface, you may want to try the flexed-hip Nordic ham curl. This variation puts your hamstrings at a greater length and a better position to produce force, so you'll be a little bit stronger with these than the traditional variation. Keep your hips bent at around 90 degrees throughout the entire movement. The traditional variation better works the biceps femoris long head, but this variation better works the semitendinosus.

REACHING SINGLE-LEG ROMANIAN DEADLIFT WITH KNEE RAISE



EXECUTION

1. Stand on one foot. Squeeze the glute of the nongrounded leg to lock it into position as it travels back. Raise your arms overhead and keep them in that position throughout the set.
2. Making sure the rear leg stays in line with the torso, bend over at the waist while shifting your weight back and looking down to prevent cervical hyperextension. Keep your chest up.
3. Keeping a strong low-back arch, descend until your hamstring range of motion runs out. Reverse the motion back to the starting position and perform a knee lift with the nongrounded leg. Perform all the repetitions on the weaker leg first and then switch and repeat with the stronger leg.

MUSCLES INVOLVED

Primary: Hamstrings (biceps femoris, semitendinosus, semimembranosus)

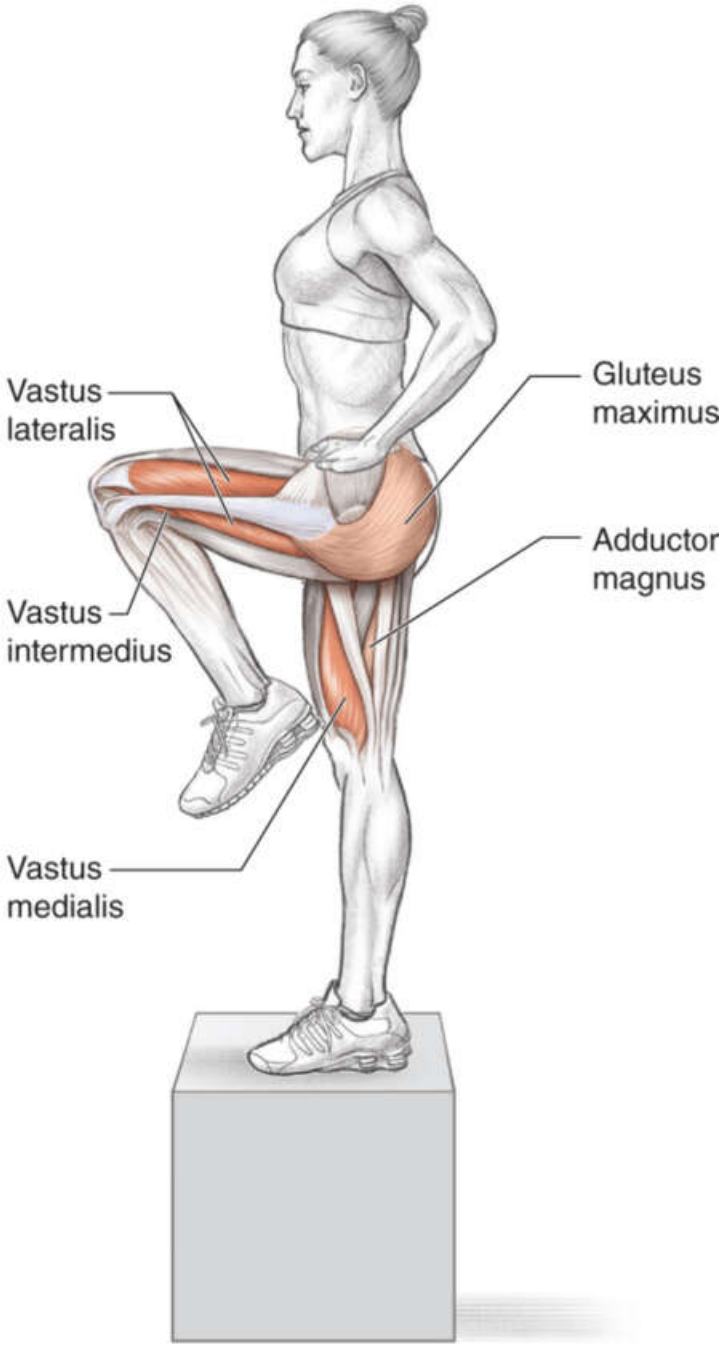
Secondary: Erector spinae (spinalis, longissimus, iliocostalis), gluteus maximus

EXERCISE NOTES

The reaching single-leg Romanian deadlift uses the primary hip-hinging pattern that is required for a basic lifting technique. Lifters have to learn to hinge at the hips while keeping the low back arched

because this pattern is needed for many exercises. Many lifters perform this exercise incorrectly by bending the rear leg, failing to keep the rear leg in line with the rest of their body, looking up and therefore hyperextending their neck, or rounding their back at the bottom of the movement. Squeeze the rear glute to lock the leg in place because there should be a straight line from the heel to the head during this movement. At the bottom, you want the arms, head, neck, torso, and rear leg all in line with one another and roughly parallel to the ground. This serves as an excellent mobility, stability, and sensorimotor exercise because it's quite challenging to maintain proper balance.

STEP-UP



Starting position.

EXECUTION

1. Begin with your entire foot placed on top of a step, sturdy box, chair, or weight bench. The other foot remains on the ground.
2. Shift your weight forward and lift your body weight by stepping up, making sure that the top leg does most of the work and the bottom leg doesn't provide too much assistance.
3. Stand tall and squeeze the working glute. Do not touch the working leg to the bench;

instead, swing the nongrounded knee upward by flexing the hip. Lower yourself slowly and under control back to the starting position.

MUSCLES INVOLVED

Primary: Vastus lateralis, vastus medialis, vastus intermedius

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

The step-up is a classic exercise that has stood the test of time. Weaker people must start from a very low height and work their way up to greater heights over time. Do not make the mistake of placing just half of your foot on the step because this prevents you from pushing through your heel. Do not use the bottom leg to help blast yourself up, because this prevents you from relying predominantly on the working leg. Finally, do not touch the foot of the free leg on the box as you rise. This encourages you to catch yourself in a quarter-squat position and use both legs to complete the movement. Use a full range of motion and make the intended leg do most of the work from start to finish.

VARIATIONS

High Step-Up

As you gain proficiency in the standard step-up, increase the difficulty of the exercise by continuing to find higher steps. Do not go so high that you end up tilting the pelvis laterally. Do not let your lower back round or your pelvis tuck under. This variation is a favorite glute exercise of many of my clients and, when performed correctly, provides an excellent single-leg strengthening stimulus.

Partner-Assisted High Step-Up

You may choose to perform high step-ups with a partner. The partner stands on the opposite side of the platform and holds your hands to provide stability. Perform this variation rapidly to develop full range single-leg strength and power.

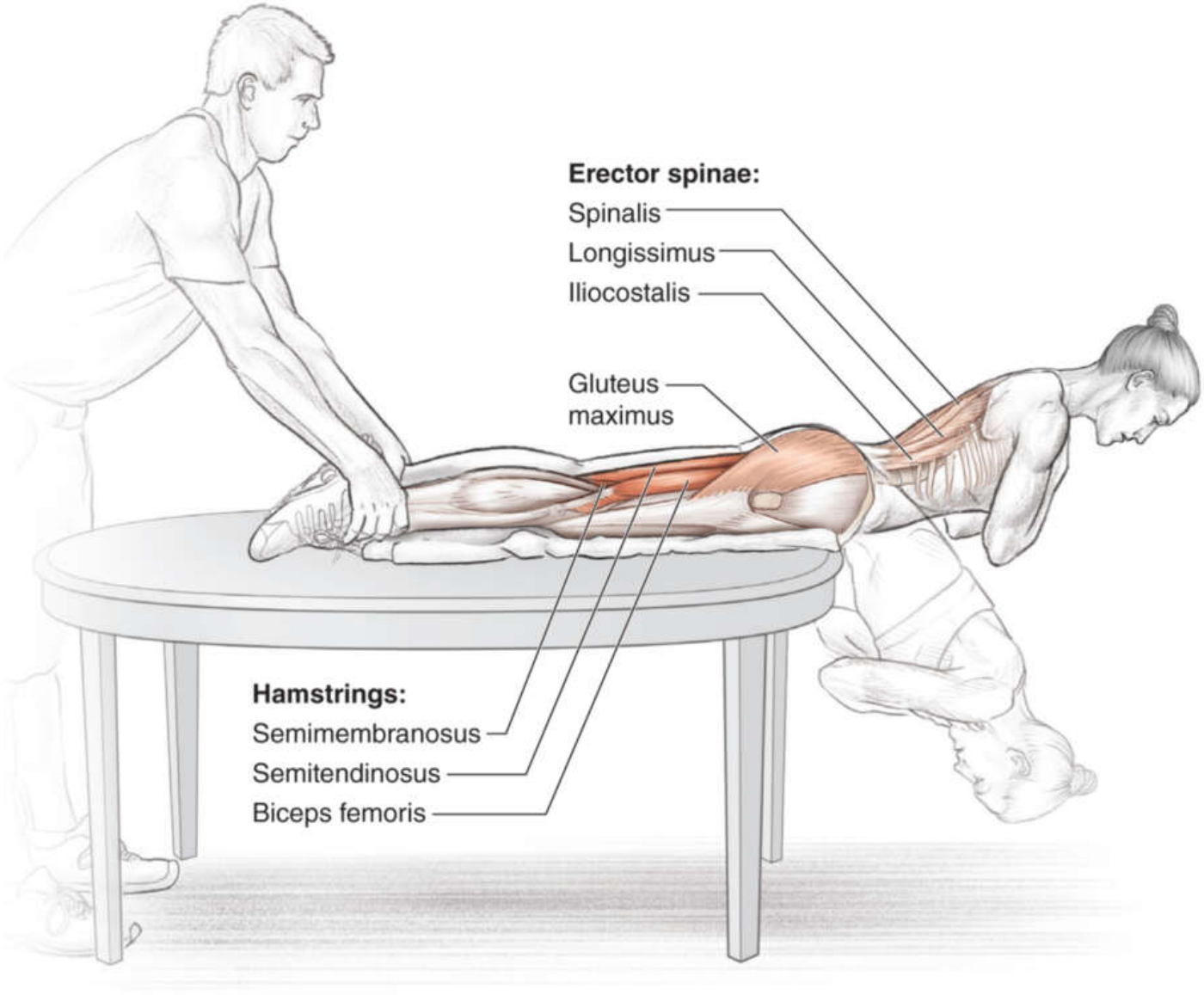
Glute Dominant Step-Up

To make the step-up as glute dominant as possible, find something to step on that's a little higher than knee height. (You may need to adjust the height based on your body measurements.) Begin standing on the platform. If you need help with balance, hold on to a support (not shown); if not, place your hands on your hips. Take a long step back and lean the torso forward, striving to keep the shin of the front leg vertical and reaching a parallel thigh position before touching down. Try to slow down the movement in the deepest part of the movement and feel the stretch on the glutes. Lightly touch down. Remember to reach far back with the rear leg while keeping it in line with the torso.

Step-Down

To work yourself up to high step-ups, you may want to work on the lowering phase first by doing step-downs. Simply control yourself during the descent as much as possible, slowing down the movement and striving to touch down lightly on each repetition. You can get back up to the starting position however you want; this variation is solely eccentric in nature.

PARTNER-ASSISTED BACK EXTENSION



EXECUTION

1. With a partner holding the backs of your ankles, drape your body over the end of a couch or sturdy table so that your legs are straight and secured. Make sure your neck is in neutral position and your hands are in the mummy position (crossed in front of your body).
2. Bend at your hips and not your spine, getting a good stretch in the hamstrings.
3. Raise your torso while squeezing the glutes to lockout.

MUSCLES INVOLVED

Primary: Hamstrings (biceps femoris, semitendinosus, semimembranosus)

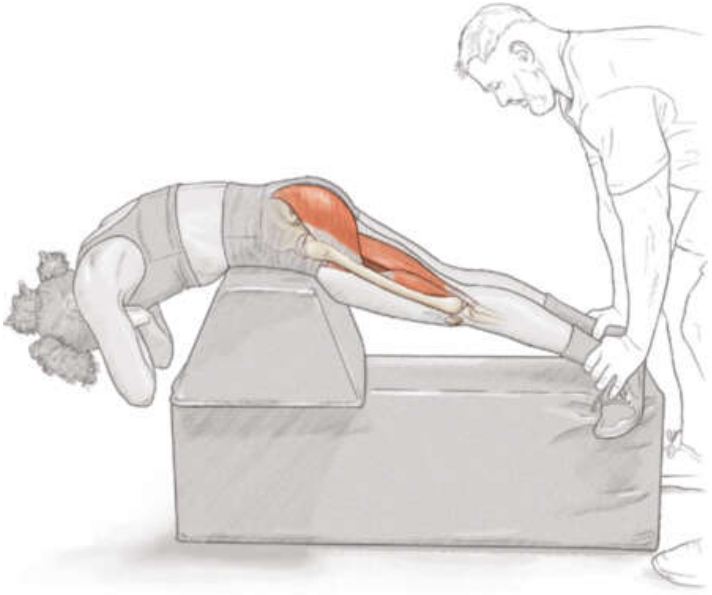
Secondary: Gluteus maximus, adductor magnus, erector spinae (spinalis, longissimus, iliocostalis)

EXERCISE NOTES

The partner-assisted back extension is an excellent and efficient exercise for the hamstrings, gluteal muscles, and erector spinae. Most people perform this exercise incorrectly. Because the exercise is called a *back extension*, most people feel the need to flex and extend the spine to try to feel the movement in the spinal erectors as much as possible. It is more effective to make the glutes and hamstrings the prime movers by flexing and extending at the hips and keeping a rigid spine throughout the exercise. For this reason, it should be called a *hip extension* rather than a *back extension*. At the top of the motion, squeeze the glutes as hard as possible and envision your glutes pulling your torso upright to erect your body. The hamstrings are critical sprinting muscles, and this exercise helps strengthen them.

VARIATIONS

Glute Dominant Back Extension

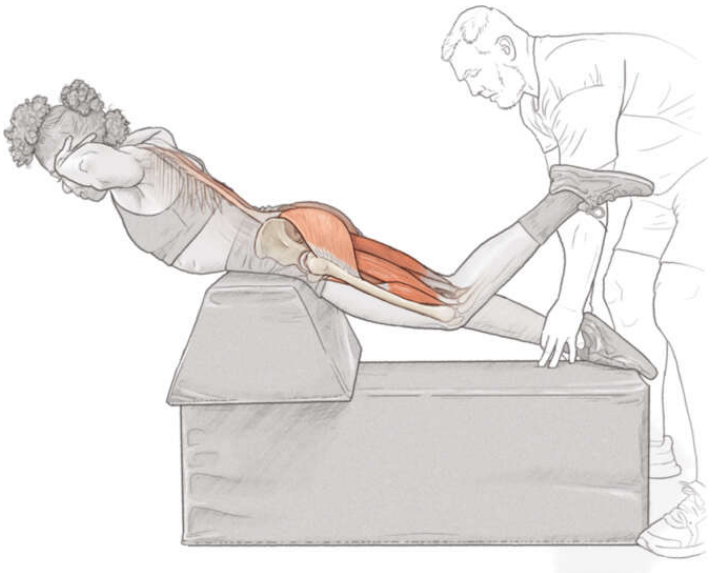


Alternatively, you can perform the movement in a more glute-dominant fashion by rounding your low back and keeping it flexed throughout the movement and by turning your feet out. Keeping the spine flexed shuts off the erectors, making this a purer hip extensor exercise. Turning your feet out places the hips in external rotation, which better activates the glutes.

Bent-Leg Back Extension

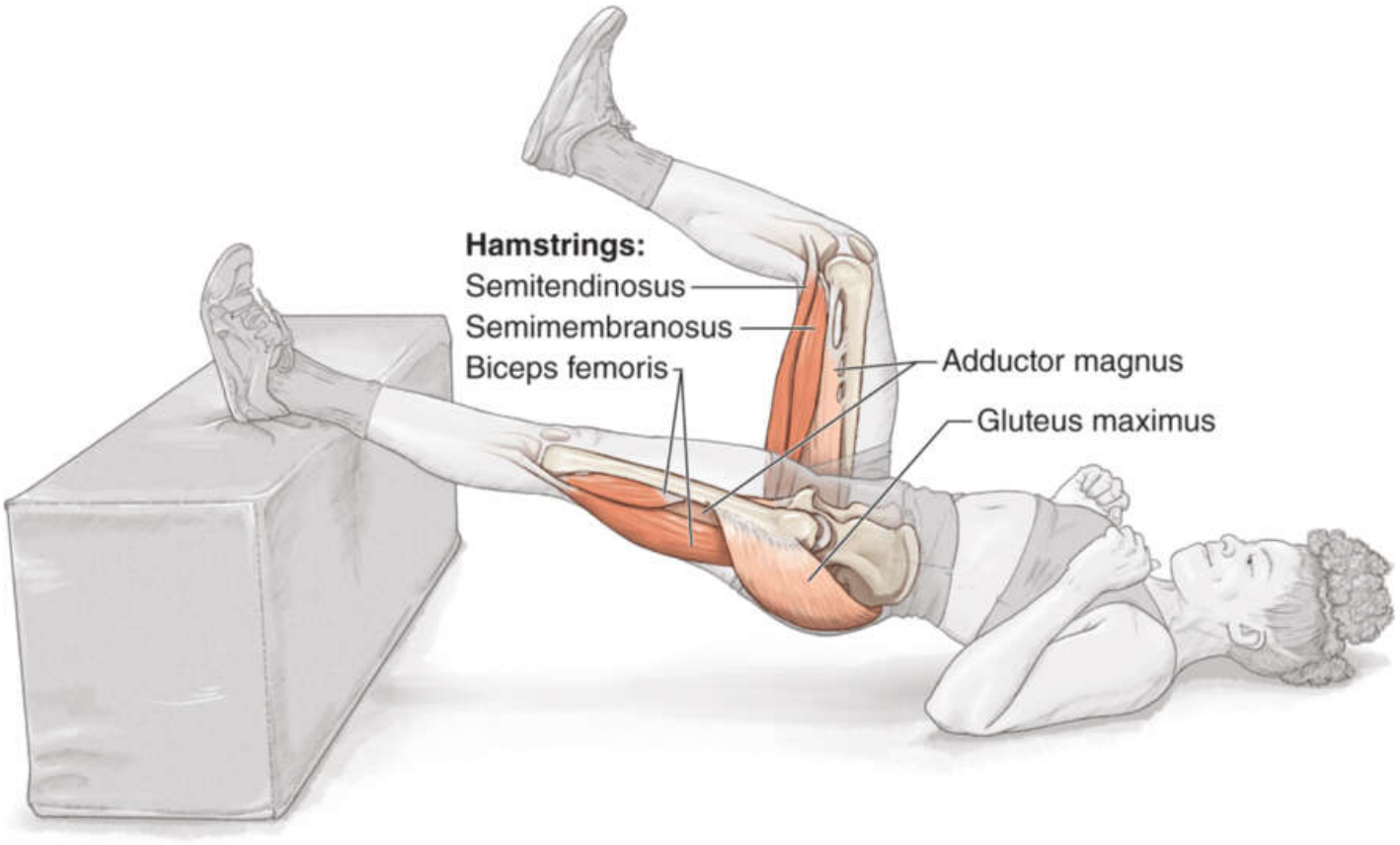
The bent-leg back extension is also more glute dominant because it diminishes the hamstring contribution (the hammies are shortened due to the bent knees) and increases gluteal muscle involvement. This variation takes some getting used to because it's not easy for the partner to keep their knees right around 90 degrees.

Single-Leg Prisoner Back Extension



When the double-leg back extension variations become too easy, try single-leg prisoner back extensions. Place your hands behind your head to increase the lever length of the center of mass and use only one leg to carry out the movement. This exercise is very challenging for the hamstrings, so I hope you can find a partner who will help you perform it regularly.

SINGLE-LEG STRAIGHT-LEG BRIDGE



EXECUTION

1. Lie supine with your palms flat on the ground or your arms bent and fists clenched. Place the back of one heel on top of a bench, couch, or table and lift the other leg in the air. The grounded leg will be straight, and the nongrounded leg is flexed slightly.
2. Bridge upward using the hamstring and glute to raise the hips to full extension.
3. Lower to the starting position and keep your foot pointed straight upward throughout the set.

MUSCLES INVOLVED

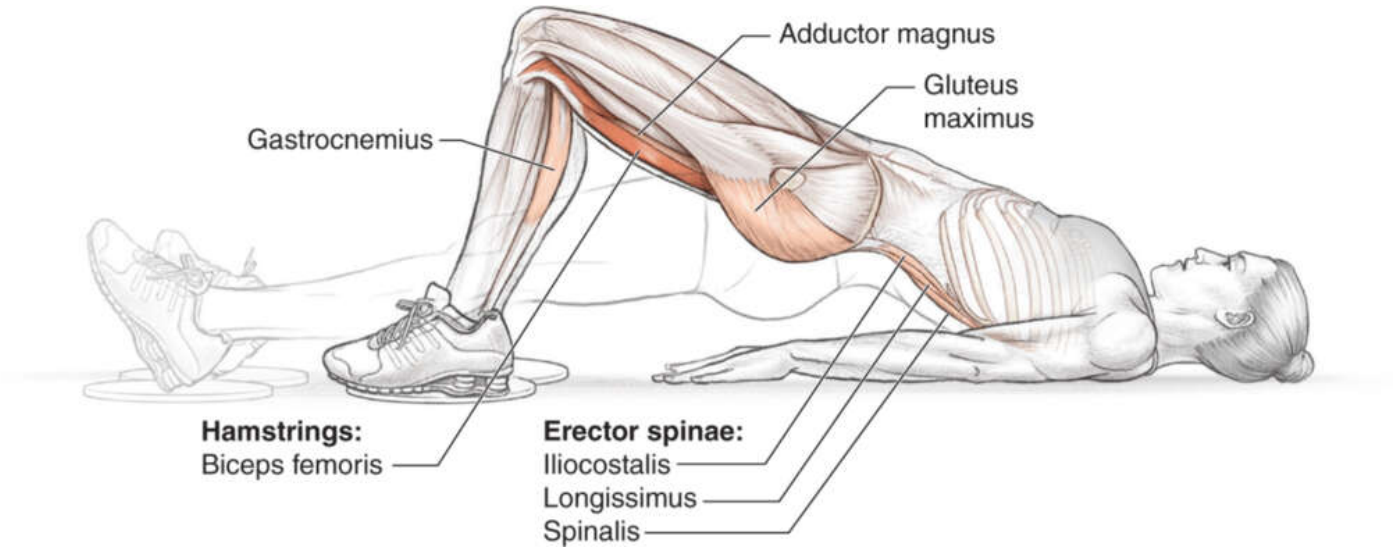
Primary: Hamstrings (biceps femoris, semitendinosus, semimembranosus)

Secondary: Gluteus maximus, adductor magnus

EXERCISE NOTES

Training the hamstrings with bodyweight exercises is very challenging because, as with upper-body pulling exercises, lower-body pulling requires something to grip or anchor the legs so the hamstrings can pull your body up via knee flexion or straight-leg hip extension. This is a short-range movement, but it might be the best candidate if you're training alone without a partner. Turn your foot out if you want to target the lateral hammies more or turn your foot in if you want to target the medial hammies more.

PAPER PLATE SLIDING LEG CURL



EXECUTION

1. Lie on your back with your palms down, placing your heels on two paper plates. You also can use commercially available sliding exercise disks or, on a slick floor, two small hand towels.
2. Bridge upward in the hips while bringing the heels toward the buttocks.
3. Keep the hips high throughout the movement. Lower your body back to the starting position.

MUSCLES INVOLVED

Primary: Hamstrings (biceps femoris [long and short heads], semitendinosus, semimembranosus)

Secondary: Gastrocnemius, gluteus maximus, adductor magnus, erector spinae (spinalis, longissimus, iliocostalis)

EXERCISE NOTES

The paper plate sliding leg curl is an effective hamstring exercise that develops both hip extension and knee flexion strength at the same time. Most people perform this exercise incorrectly by sagging at the hips and failing to keep the hips extended throughout the set. Proper form takes discipline because it's tempting to allow your hips to drop and simply flex and extend your knees. Squeeze the glutes to raise the hips and keep them contracted while pulling the feet toward the rear with the hamstrings.

VARIATIONS

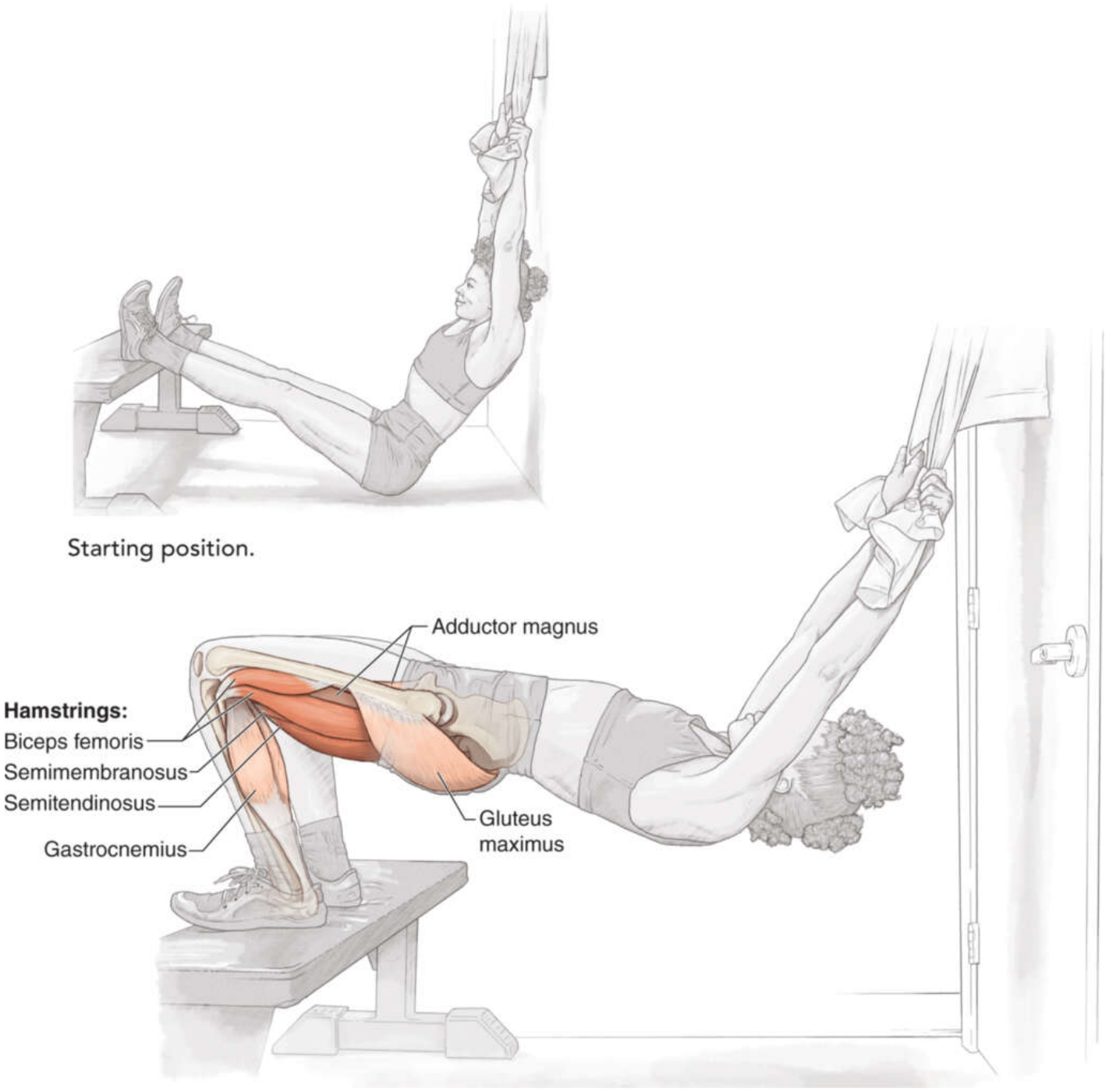
Eccentric Single-Leg Sliding Leg Curl

Before performing single-leg sliding leg curls, first perform eccentric single-leg sliding leg curls. Begin in a bridged position. Raise one leg off the ground with your other foot on the slider or paper plate. Lower your body by keeping your hips high and extending your knee. Work especially hard at the bottom of the movement when it gets challenging; control the negative portion all the way to the ground.

Single-Leg Sliding Leg Curl

Once you've built up considerable eccentric strength, it's time to try the full single-leg variation in which you perform both the eccentric and concentric phase. Don't let your hips sag. Keep your hips at full extension throughout the set.

GLIDING LEG CURL



EXECUTION

1. Begin hanging from a sheet looped over a rafter or door. (The door is shut, and the sheet has a knot tied in the middle that serves as a stopper.) Place the back of your heels on top of a step or table.
2. Your body is folded in half, with your legs straight and torso and arms outstretched above. From this position, simultaneously extend your hips and flex your knees, both actions of the hamstrings.

3. Drive your knees forward while keeping your hips high then return to the starting position.

MUSCLES INVOLVED

Primary: Hamstrings (biceps femoris **[**long and short heads**]**, semitendinosus, semimembranosus)

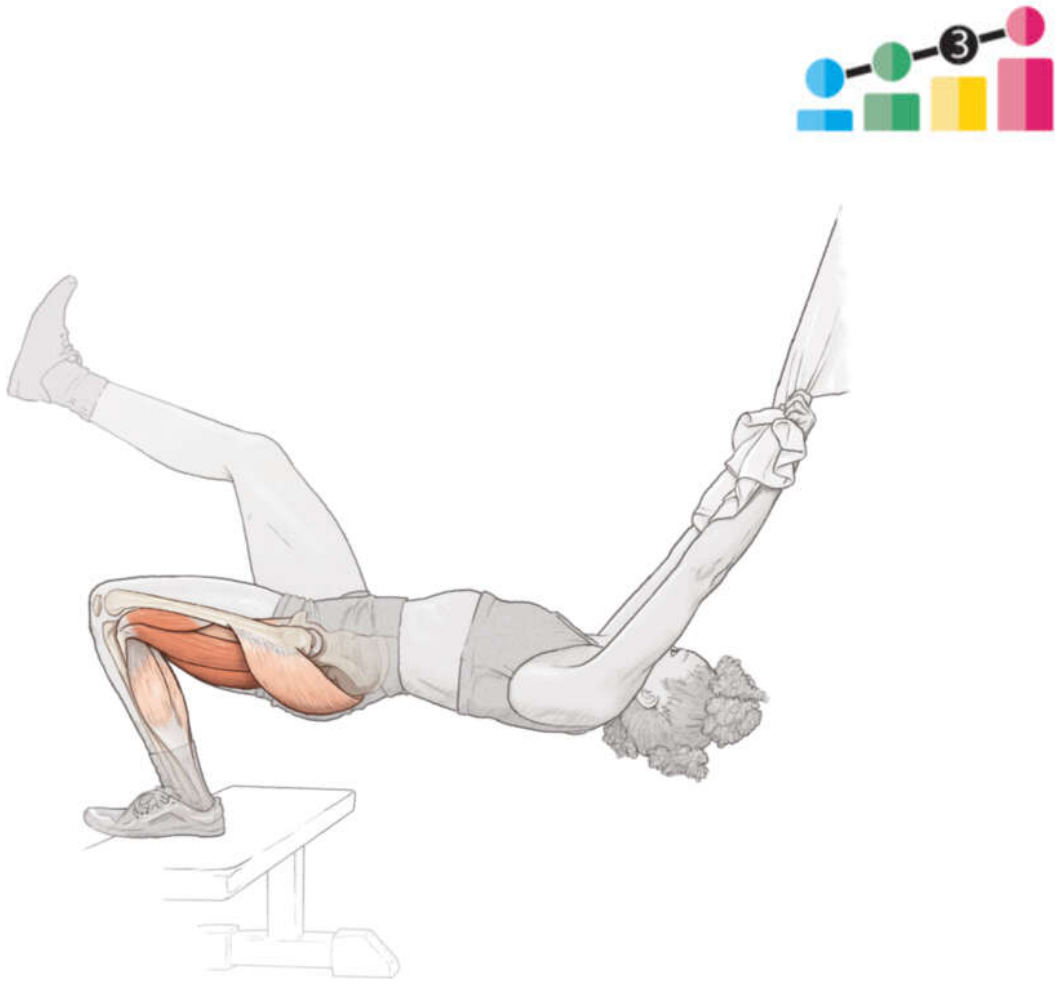
Secondary: Gastrocnemius, gluteus maximus, adductor magnus

EXERCISE NOTES

The gliding leg curl is extremely difficult to set up. But bodyweight hamstring training is very difficult, so you have to get crafty. This is an amazing exercise for the hammies and the grip. Make sure to sink down at the bottom and get a good stretch in the hamstrings. Be sure to squeeze the glutes to keep your hips tall throughout the movement.

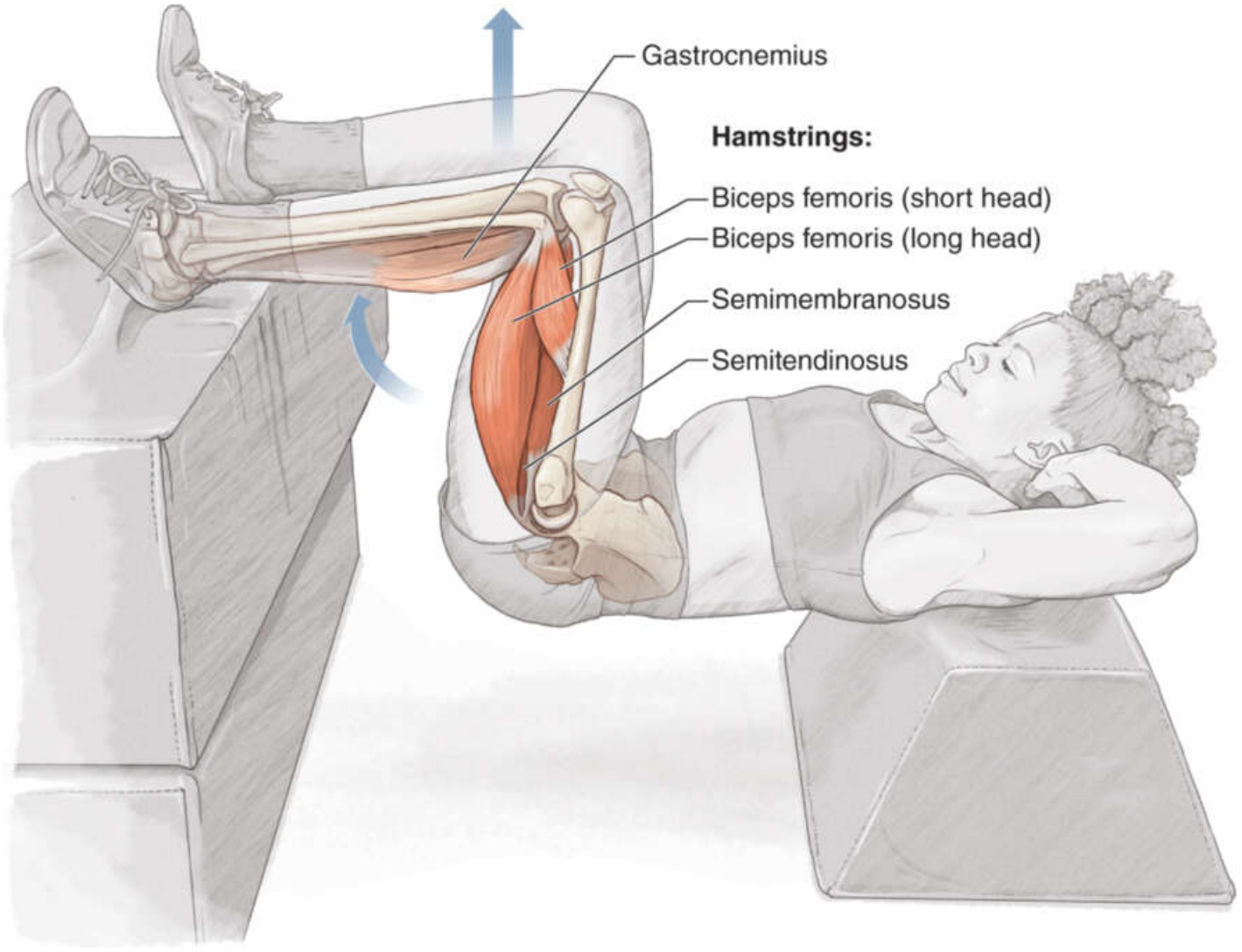
VARIATION

Single-Leg Gliding Leg Curl



Once you've mastered the bilateral gliding leg curl, it's time to try the unilateral variation. This is an advanced movement, so don't expect to be able to do this right away. Same rules apply: Keep your hips tall and pull your body weight forward.

SHOULDER AND FOOT ELEVATED KNEE FLEXION PULSE



EXECUTION

1. Begin supine with your hands behind your neck or out to the sides, your butt on the ground, your back elevated onto a bench or couch, and your heels elevated onto a sturdy surface such as a table. Ideally your feet are higher than your shoulders.
2. Dig your heels into the surface and pull your body up via knee flexion.
3. Drive your knees high using your hamstrings, then lower back to the starting position.

MUSCLES INVOLVED

Primary: Hamstrings (biceps femoris [long and short heads], semitendinosus, semimembranosus)

Secondary: Gastrocnemius

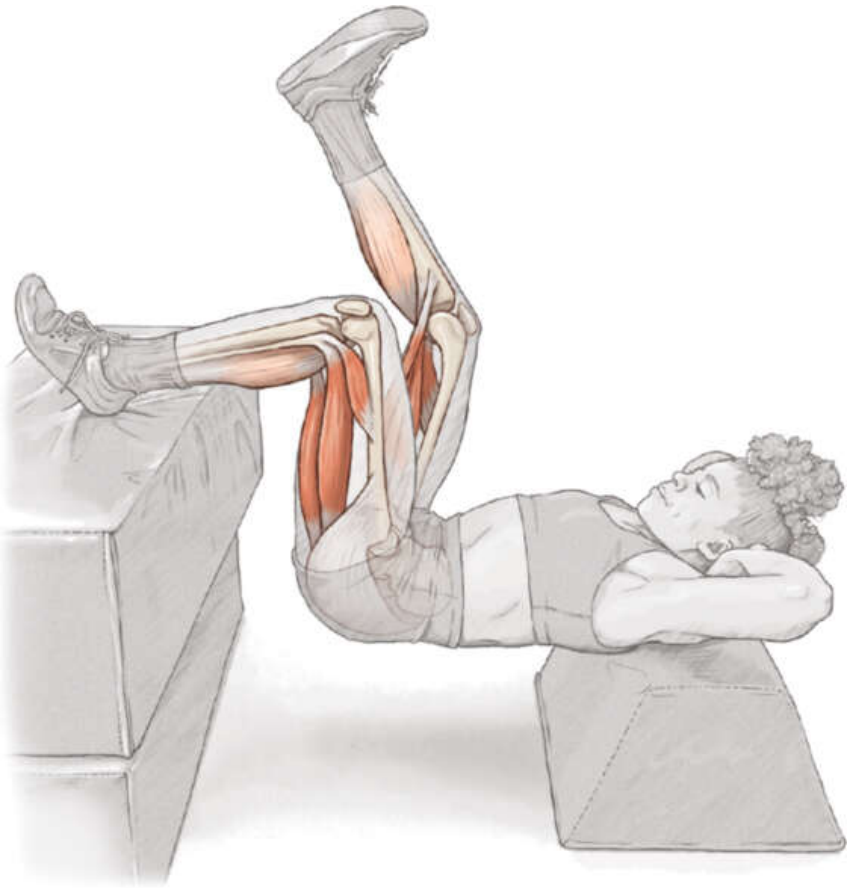
EXERCISE NOTES

This exercise involves a small range of motion, but it's surprisingly effective. Again, when training

the hammies with only body weight for resistance, you must get creative.

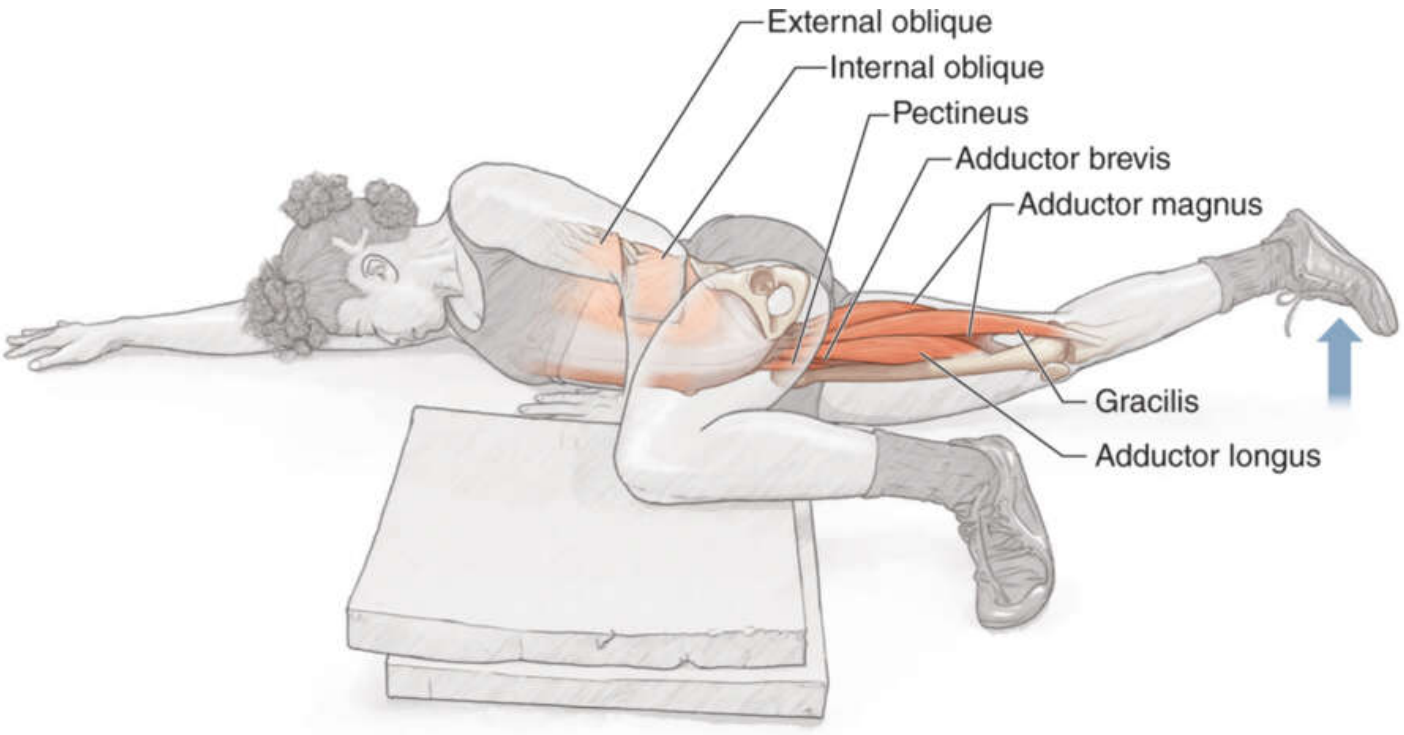
VARIATION

Single-Leg Shoulder and Foot Elevated Knee Flexion Pulse



Once you've mastered the double-leg version, give the single-leg version a try. This is a very advanced movement that takes time to be able to perform. Don't rush into it. Stick with the double-leg version or perform only the lowering phase one leg at a time until you can control the motion.

SIDE-LYING HIP ADDUCTION



EXECUTION

1. Begin in a side-lying position on the floor, with the bottom leg straight and the top leg bent and resting on top of a pad.
2. While staying in the frontal plane (still lying on your side), adduct the bottom leg to raise it as high as you can.
3. Return to the starting position.

MUSCLES INVOLVED

Primary: Adductor magnus, adductor longus, adductor brevis, gracilis, pectineus

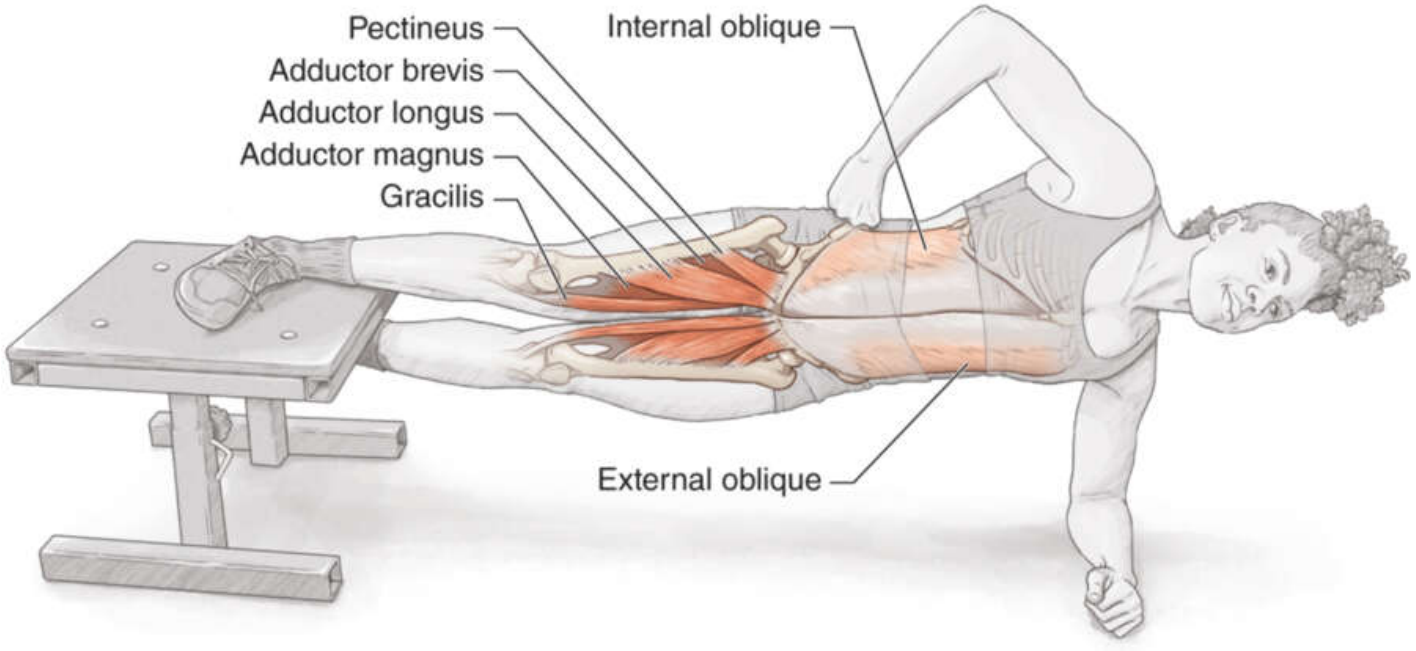
Secondary: External oblique, internal oblique

EXERCISE NOTES

The enhanced version of this exercise has you in a side-lying position on top of a bench or table with the bottom leg abducted and touching the ground and the top leg bent and abducted in the air. With the standard version of this exercise from the floor, most people generate barely any range of motion. This version has you moving the thigh through a larger range of motion, thereby making the movement more effective. It takes a couple of times to get the hang of it, but it will feel natural in time.

COPENHAGEN HIP ADDUCTION

Starting position.



EXECUTION

1. Begin in a side plank position with the top leg resting on top of a bench or table and the bottom leg resting on the ground.
2. Driving through the top leg, bridge up and bring your legs together.
3. Return to the starting position. Keep the movement in the frontal plane (side to side, not bending or rotating).

MUSCLES INVOLVED

Primary: Adductor magnus, adductor longus, adductor brevis, gracilis, pectineus

Secondary: External oblique, internal oblique

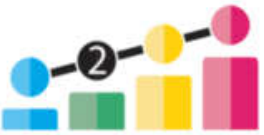
EXERCISE NOTES

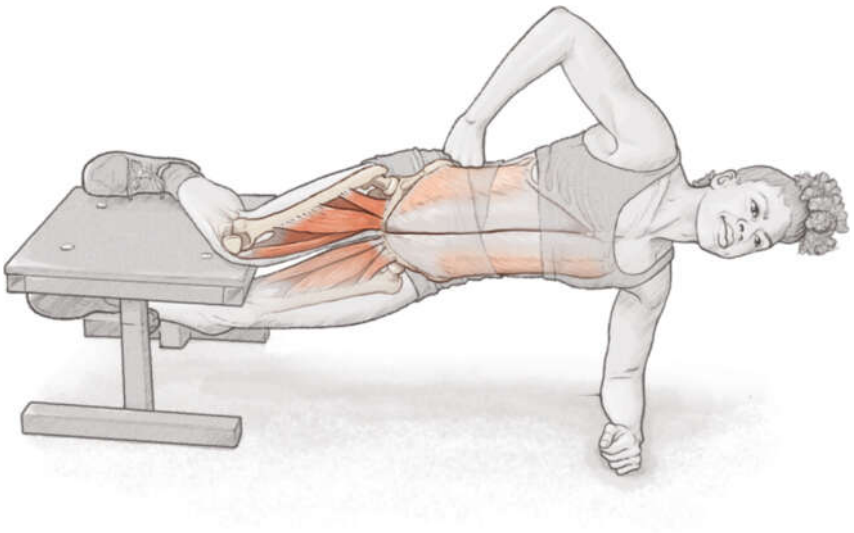
The Copenhagen hip adduction has gained popularity due to its inherent ability to reduce adductor strains. Think of it as the Nordic ham curl for the adductors. As you gain proficiency, raise the

height of the bench or table.

VARIATION

Short-Lever Copenhagen Hip Adduction





Initially, you may need to perform this movement from a shortened lever position. For this variation, place your knee on the bench or table and follow the same steps you would in the primary version.

CHAPTER 8

Glutes

Over the decades, I've become known as the Glute Guy. I'd be surprised to meet anyone as interested in the glutes as I am. I have conducted thousands of hours of research, including poring over scientific literature and hooking myself up to electrodes to measure the glutes' electromyography activity during exercise. I've helped thousands of clients dramatically improve the strength and shape of their glutes. This transformation is critical both for function (because strong glutes produce powerful locomotion) and appearance (because firm, sculpted buttocks are sure to catch everyone's attention.)

Gluteal Muscles

The glutes consist of three muscles: the gluteus maximus, gluteus medius, and gluteus minimus. (See figure 7.1*b* for the location of the glutes in relation to the back of the upper leg.) It is often said that the gluteus maximus is the strongest and most powerful muscle in the human body. As humans evolved and began walking upright on two legs, their glutes developed. Further gluteal development occurred as humans gained coordination and learned to use the glutes when sprinting, throwing, and swinging things, and now our gluteus maximus muscles are the largest of all primates.

Unfortunately, because of today's sedentary lifestyle, many people have weak and underdeveloped glutes. Don't fall into that trap. Understand that the gluteus maximus is responsible for several joint actions. Concentric contractions (when muscle fibers shorten) extend the hip, laterally rotate the hip, abduct the hip (move the leg away from the center of body), and posteriorly (toward front) tilt the pelvis. The gluteus maximus functions isometrically (with little shortening of muscle) and eccentrically (when muscle lengthens during contraction) to prevent or absorb hip flexion and to produce internal hip rotation, hip adduction (brings leg toward center of body), and anterior (backward) pelvic tilt. The gluteus medius and gluteus minimus are responsible for hip abduction and hip rotation, either internal or external, depending on the muscle fibers and level of hip flexion.

All gluteal muscles possess several functional subdivisions, meaning that the various fibers within the muscles can function separately to carry out different actions. For example, the upper gluteus maximus fibers are highly involved in frontal and transverse plane hip abduction, whereas the lower gluteus maximus fibers are involved in only transverse plane hip abduction. Because of

the connections with the thoracolumbar fascia (TLF), iliotibial band, and sacrotuberous ligaments, the gluteus maximus plays important roles in foot and ankle mechanics and power transfer from the upper to lower body during the gait cycle.

The glutes are not only the powerhouse of the human body but also keystone muscles that keep everything else in line. Strong gluteal muscles are critical for a properly functioning body. Weak glutes have been associated with myriad dysfunctional movement patterns. It is important that the knees track properly over the toes when climbing, stepping, jumping, landing, and squatting. Because the glutes contract during hip movement to prevent the knees from caving in (valgus collapse), weak glutes can lead to knee pain caused by excessive stress in the patellofemoral region if this repetitive dysfunctional pattern occurs, especially when landing from a jump. Furthermore, strong glutes will shift movement patterns to absorb and produce more force at the hips and less at the knee joint. For example, people with strong hips will sit back more in a squat, whereas people who are quad dominant or who simply have weak hip extensors will stay more upright and bend more forward at the knees, which over time can lead to knee pain.

It is also important to keep the spine in a relatively neutral position during bending and lifting tasks, maintaining the normal, natural curvature of the lumbar spine. People with strong glutes, especially at long muscle lengths, are more apt to keep a rigid neutral spine when lifting and move mostly around the hip joint, whereas people with weak glutes in deep hip flexion are more likely to round excessively at the lower back (lumbar compensation), which over time can lead to lower-back pain. Sacroiliac (SI) joint pain is often caused by weak glutes. Because the gluteus maximus pulls the ligaments taut to sufficiently close the SI joint, exercisers with weak glutes are more prone to SI joint instability during strenuous activity, which can cause pain.

Strong glutes play an important role in the balance of *force couples* across the lumbopelvic region. Essentially, the pull of the spinal erectors and hip flexors, which anteriorly tilt the pelvis, exceeds the pull of the glutes and abdominals, which posteriorly tilt the pelvis, causing a gradual anterior pelvic tilt over time, accompanied by hyperlordosis (overarching) of the lumbar spine and thereby predisposing the body to lower-back pain.

The gluteus maximus pulls rearward on the upper femur during hip extension, and people with weak glutes are likely to suffer from anterior hip pain caused by jamming the femur head into the front of the hip socket during hip extension. This is known as *anterior femoral glide syndrome*. Depending on the task, insufficient glute strength can require more output from the quadriceps, hip adductors, hamstrings, hip rotators, quadratus lumborum, erector spinae, and even the abdominals. This can lead to various tears in the surrounding muscles because of a phenomenon called *synergistic dominance.* For example, a pulled biceps femoris of the hamstrings or adductor magnus during sprinting could be the result of the muscle being overworked as it tries to pick up the slack for a weak gluteus maximus during hip extension.

The term *gluteal amnesia* has been used to describe the weak, poorly developed status of the backsides for sedentary people whose glutes are so atrophied and uncoordinated that they fail to work properly during functional movement. I'm not a fan of this term, but this lack of functional coordination occurs for myriad reasons. Excessive sitting can decrease flexibility in the hip extensors, inhibit gluteal activation, and compress gluteal tissue, thereby shutting off its blood supply and interfering with nutrient delivery and neural functioning. Finally, the law of use versus disuse applies heavily to the glutes; people who use the muscles of their buttocks keep them, but folks who fail to use them will watch their glutes wither away over time.

Glutes in Motion

The glutes are vital for functional movement. Walking, standing up from a chair, climbing stairs, picking up objects off the floor, and carrying objects across the room all require properly functioning posterior chain musculature. (The spinal erectors, gluteus maximus, adductor magnus, and hamstrings make up the posterior chain.) The gluteus maximus plays a major role in most athletic activities. As athletes mature from novice to advanced to elite status, they learn to derive increasing amounts of propulsive power from the hips. Propulsive power is considerably influenced by the strength of the gluteus maximus because this muscle is heavily involved in nearly all primary

sporting motions, including running, cutting, jumping, throwing, and striking.

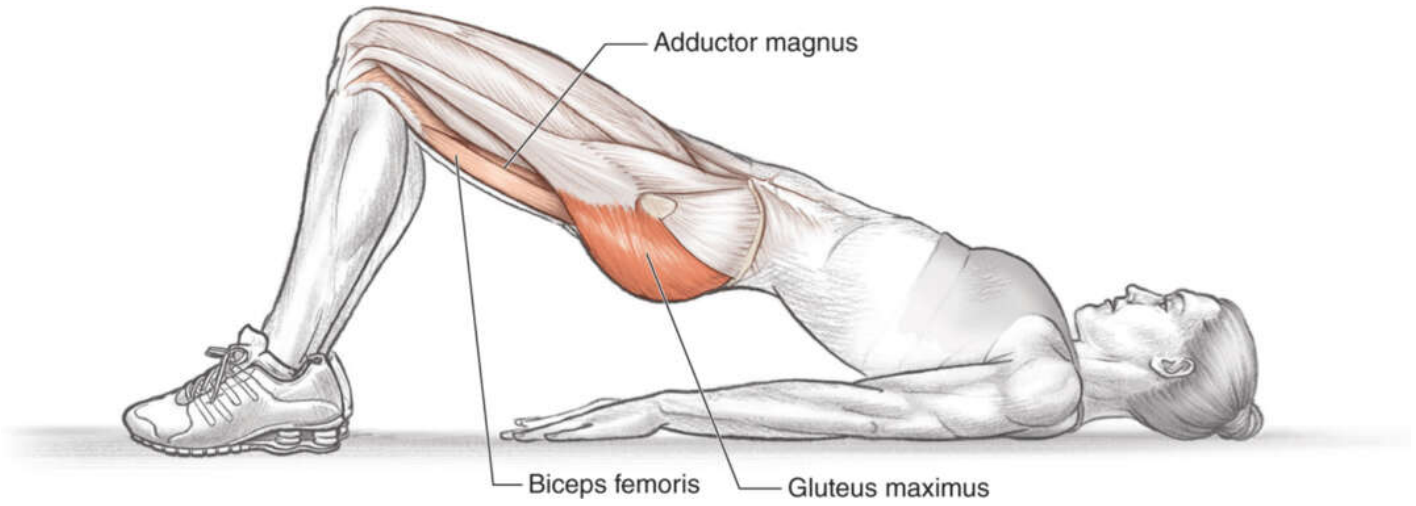
The gluteus maximus contracts forcefully to extend the hips during foot strike in a sprint, during a countermovement vertical jump, while freestyle swimming or hiking a mountain, and to buck an opponent out of a full-mount position in mixed martial arts. The external rotational power of the gluteus maximus produces the twisting torque at the hips required to forcefully swing a bat in baseball or softball or racket in tennis; to throw a ball in American football or baseball; to heave a shot put, discus, or hammer in track and field; or to throw a hook, cross, or uppercut in boxing. The abduction power of the gluteus maximus produces lateral stability during running to prevent hip sag and produces lateral power when cutting from side to side during agility and change-of-direction maneuvers in sports such as American football, soccer, volleyball, basketball, hockey, and tennis.

The gluteus maximus is not only involved in high-power and speed sports such as track and field but also is used in high-force sports such as powerlifting and strongman. Heavy squatting, deadlifting, stone lifting, and carrying require intense gluteus maximus strength. In Olympic weightlifting, cleaning, jerking, and snatching actions require substantial gluteus maximus power to accelerate the barbell.

What's more, the gluteus maximus functions concentrically, eccentrically, and isometrically during sporting actions to produce and reduce force. It also prevents energy leaks, which maximizes movement efficiency. Sure, sporting movement requires that your muscles work in a coordinated and synergistic fashion. And yes, many muscles are important for producing power and speed, such as the quadriceps during jumping and the hamstrings during sprint running. That said, an excellent case could be made that the gluteus maximus is the most versatile and important muscle for total athleticism because of its multiple functions at the hips.

Bodyweight exercises can build the glutes very well, but it's important to first learn proper form during basic exercises before advancing to more difficult variations. Many people fail to properly activate their glutes or use movement strategies to take advantage of the strong and powerful gluteus maximus. By mastering proper activation and using excellent technical form, you will rely on the gluteus maximus for many primal movement patterns, including squatting, bending, lunging, twisting, walking, and running. It is often said that abs are made in the kitchen. I'm here to tell you that glutes are made during strength training exercise.

GLUTE BRIDGE



EXECUTION

1. Lie on your back with your knees bent at 90 degrees, feet around hip-width apart, and palms flat on the ground.
2. Pushing through the heels, raise your hips as high as possible using the gluteal muscles. Strive to move solely around the hip joint and keep your lower back in a neutral position.
3. Hold the bridge in the top position for a moment, then lower your hips to the starting position.

MUSCLES INVOLVED

Primary: Gluteus maximus

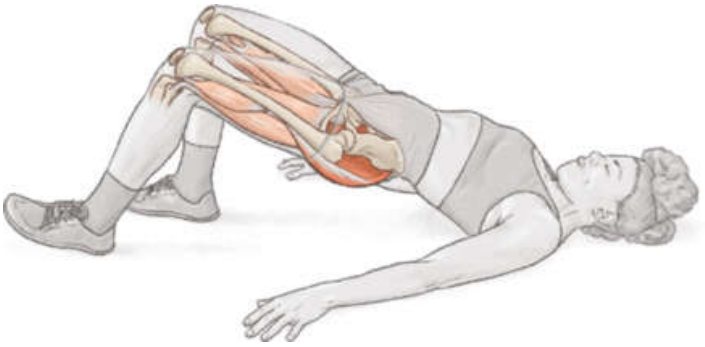
Secondary: Hamstrings (biceps femoris, semitendinosus, semimembranosus), adductor magnus

EXERCISE NOTES

The glute bridge is the fundamental bent-leg hip extension movement on which all bridging motions are built. The goal is to feel the glutes, not the hamstrings or spinal erectors, lifting the hips. Avoid hyperextending the lumbar spine or anteriorly tilting the pelvis. Bending your knees shortens the hamstring muscle, reducing its contribution to the movement and putting more emphasis on the gluteus maximus. Many people initially feel their hamstrings cramp during bridging movements because their hamstrings aren't accustomed to bent-leg hip extension motions. This quickly dissipates as the glutes learn to take on a primary hip extension role and the hamstrings serve a secondary role. Strong, well-activated glutes prevent anterior pelvic rotation and low-back overarching, which is critical for optimal performance during this exercise.

VARIATIONS

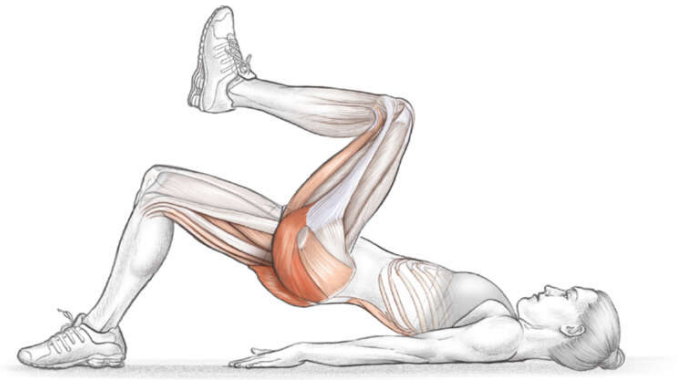
B-Stance Glute Bridge



The B-stance glute bridge is a pseudo-unilateral bent-leg hip extension movement. Lie on your back with your knees bent at 90 degrees and your palms flat on the floor. Align the heel of the kickstand foot with the toes of the planted leg and apply light pressure to provide stability to the hips and torso. Pushing through the heel of the planted foot, use your gluteal muscles to raise your hips as high as possible. Strive to move solely around the hip joint and keep your lower back in a neutral position. Hold the bridge in the top position for a moment, then lower your hips to the starting position.

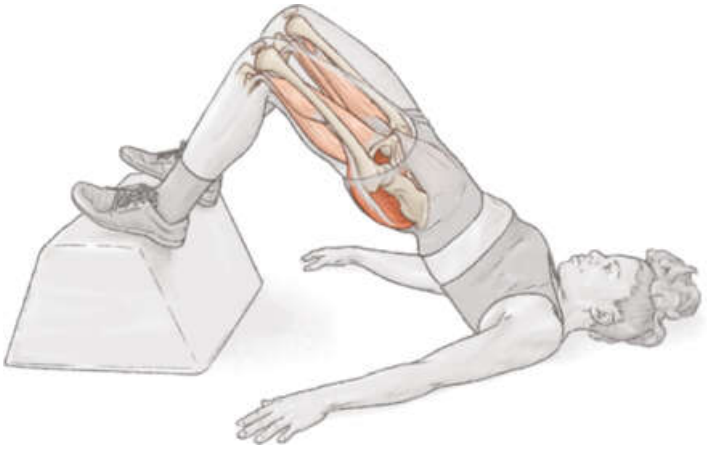
The planted leg is the working leg. The goal is to feel the glutes lifting the hips to terminal hip extension. The heel of the front leg, or kickstand leg, is aligned with the toes of the planted leg to increase stability of the hips and torso but doesn't contribute to the movement significantly. To further increase stability, flare your arms at a 45-degree angle relative to your torso, with your palms on the ground and your planted leg slightly inside hip width. The B-stance glute bridge significantly increases the gluteal demand compared to the traditional glute bridge because the working glute must handle nearly the entire load. As fatigue sets in, resist the tendency to shift weight to the kickstand leg so you will maintain consistent tension on the glutes.

Single-Leg Glute Bridge



Keep one leg bent 90 degrees at the hip and knee and perform the bridging movement on one leg. After completing all the repetitions, repeat with the other leg.

Feet-Elevated Glute Bridge

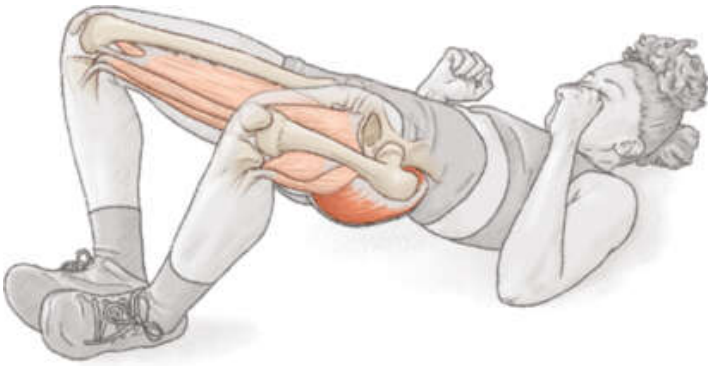


The feet-elevated glute bridge enhances glute engagement by increasing the range of motion because your feet are elevated on a stable platform, thereby creating greater hip flexion at the start. Position your feet at the corner edge of the bench, making contact with the midfoot only to maintain a neutral ankle. From here, the principles of the conventional glute bridge apply. Expect a greater hinging effect at the torso as the hips and torso extend through a more significant range, amplifying the demands placed on the glutes without shifting undue strain to the hamstrings or adductors. With proper hinging mechanics, you can prevent excessive anterior pelvic tilt and lumbar hyperextension.

Single-Leg Foot-Elevated Glute Bridge

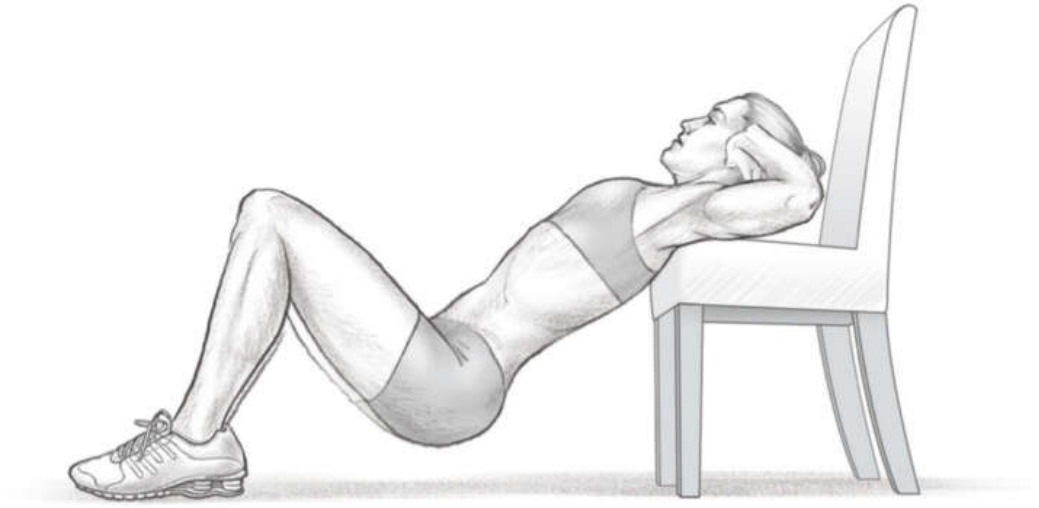
The single-leg foot-elevated glute bridge intensifies glute activation by combining the extended range of motion from elevating the foot with the concentrated load on a single glute due to the unilateral execution. Position the working leg slightly inside hip width for added stability. Elevate your foot 10 to 14 inches (25-36 cm) to allow for more hip flexion at the starting position. As you contract your glutes to drive hip extension, let your torso hinge more than in a bilateral bent-leg hip extension to achieve terminal hip extension, forming a straight line through your knees, hips, and shoulders.

Frog Pump

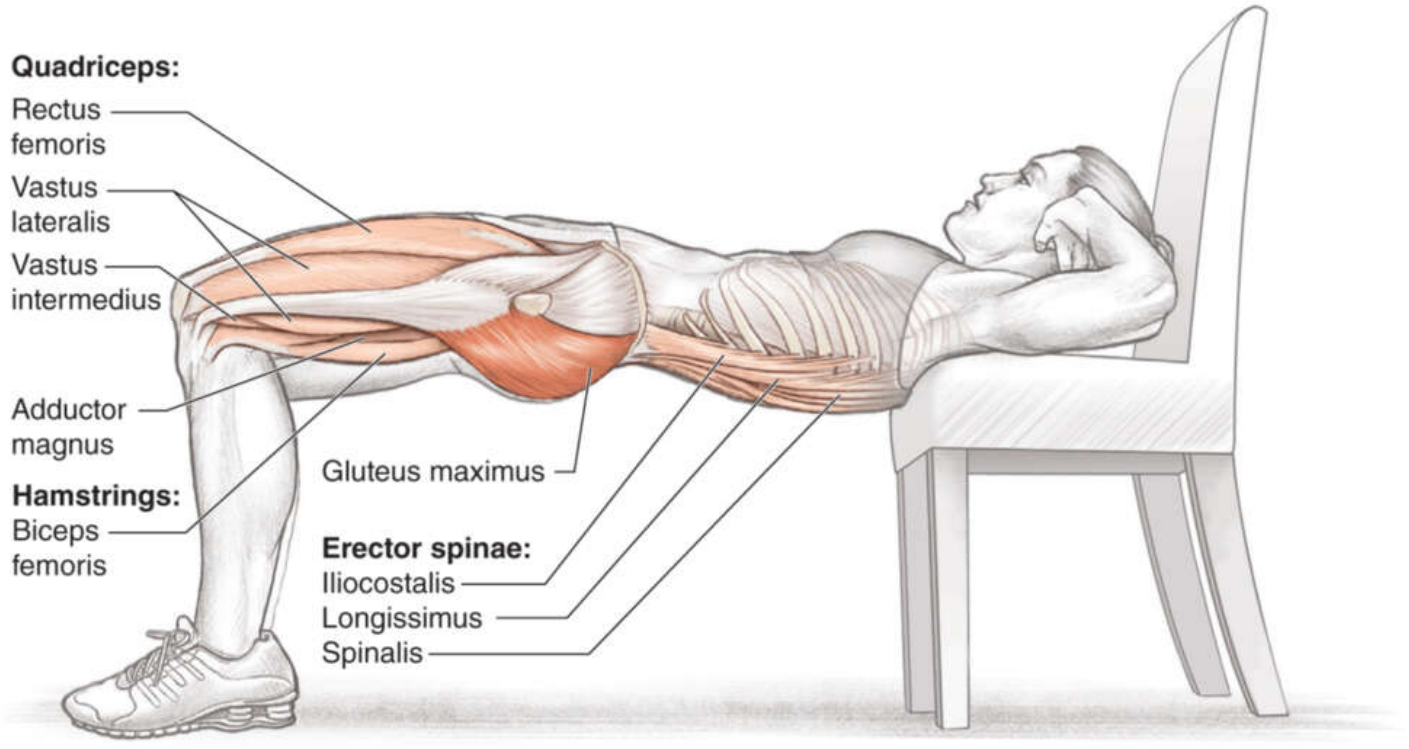


The frog pump is a unique glute exercise that loads the shortened muscle position. To set up, lie on your back with the inside edges of the soles of your feet pressed together, knees splayed out, creating a frog position. This foot placement reduces the contribution from the quads, allowing for a larger proportional glute stimulus. Maintain moderate pressure on your feet as you drive your hips up. Focus on extending your hips entirely by contracting your glutes. The shortened range of motion and high glute involvement of the frog pump allow you to perform reps at a faster cadence than you can with conventional glute bridges.

HIP THRUST



Starting position.



EXECUTION

1. Facing upward, place your upper back on top of a couch, sturdy chair, or weight bench, with your feet flat on the ground.
2. Place your hands on your ears and extend your hips by squeezing your glutes. Push through the heels and keep your lower back in a neutral position.
3. Rise as high as possible through the hips and then lower your hips to the starting position.

MUSCLES INVOLVED

Primary: Gluteus maximus

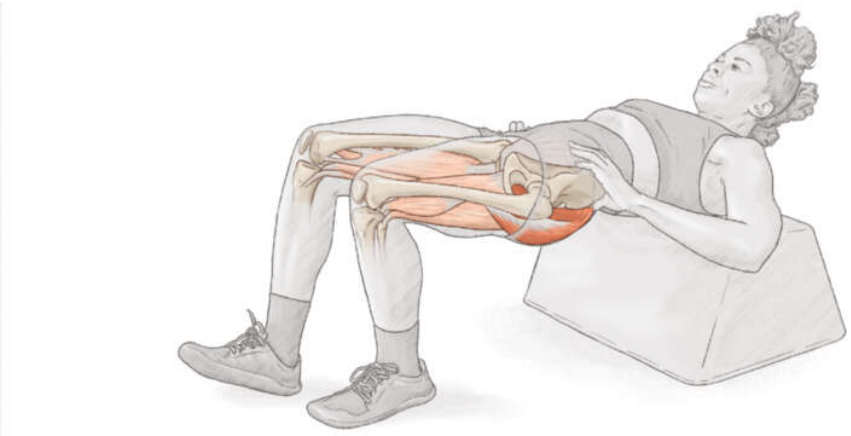
Secondary: Hamstrings (biceps femoris, semitendinosus, semimembranosus), erector spinae (spinalis, longissimus, iliocostalis), adductor magnus, quadriceps (rectus femoris, vastus lateralis, vastus medialis, vastus intermedius)

EXERCISE NOTES

The shoulder-elevated hip thrust improves on the basic hip thrust by increasing the demands at the hip and knee joints. This variation is more difficult for the quadriceps and moves the hips through a greater range of motion than the floor version does. The most difficult portion of the movement is the top, which is characterized by a neutral or slightly hyperextended hip position, since none of the tension is lost in the horizontal vector, unlike the glute bridge. It is important to be strong in this range of motion because it is used when running. Comparatively, this range of hip motion is not strengthened during squat exercises because there are no hip extension torque requirements at the hip in neutral position when standing. This is why the squat and hip thrust exercises complement each other well.

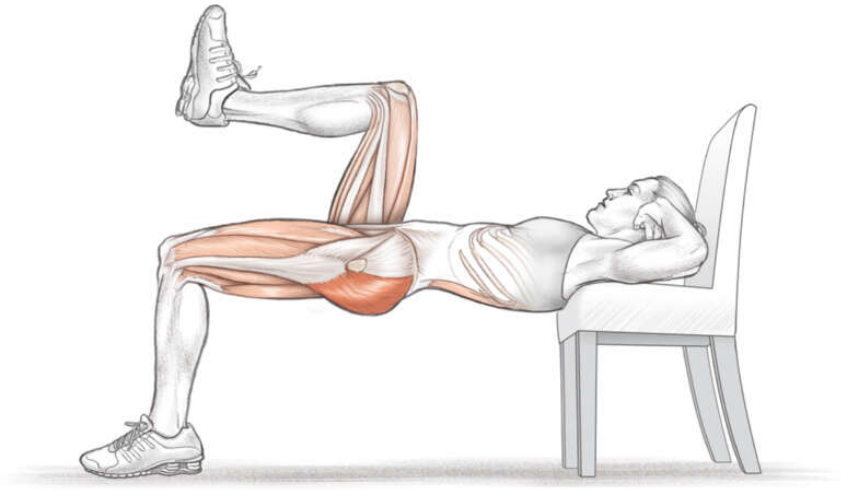
VARIATIONS

B-Stance Hip Thrust



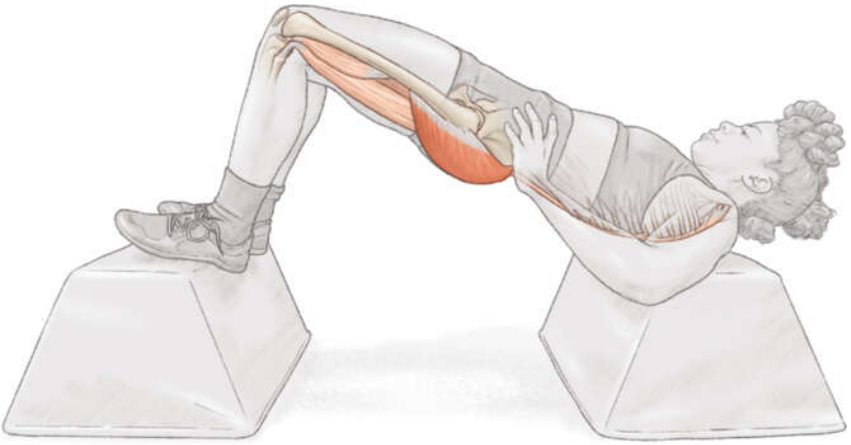
The B-stance hip thrust is a pseudo-unilateral bent-leg hip extension movement. The leg with a 90-degree angle is the working leg. The goal is to feel the glutes lifting the hips to terminal hip extension. The heel of the front leg, or kickstand leg, is aligned with the toes of the planted leg to increase stability of the hips and torso but doesn't significantly contribute to the movement. To further increase stability, flare your arms across the top of the surface and position your planted leg slightly inside hip width. The B-stance hip thrust significantly increases tension in the glutes compared to the traditional hip thrust, because the working glute must handle nearly the entire load. As fatigue sets in, resist the tendency to shift weight to the kickstand leg to maintain consistent tension on the glutes.

Single-Leg Hip Thrust



This is an advanced variation that requires considerable hip extension strength and rotary stability in the lumbopelvic region. Rise all the way; many exercisers skimp on their range of motion when this movement gets difficult.

Shoulder-and-Feet-Elevated Hip Thrust

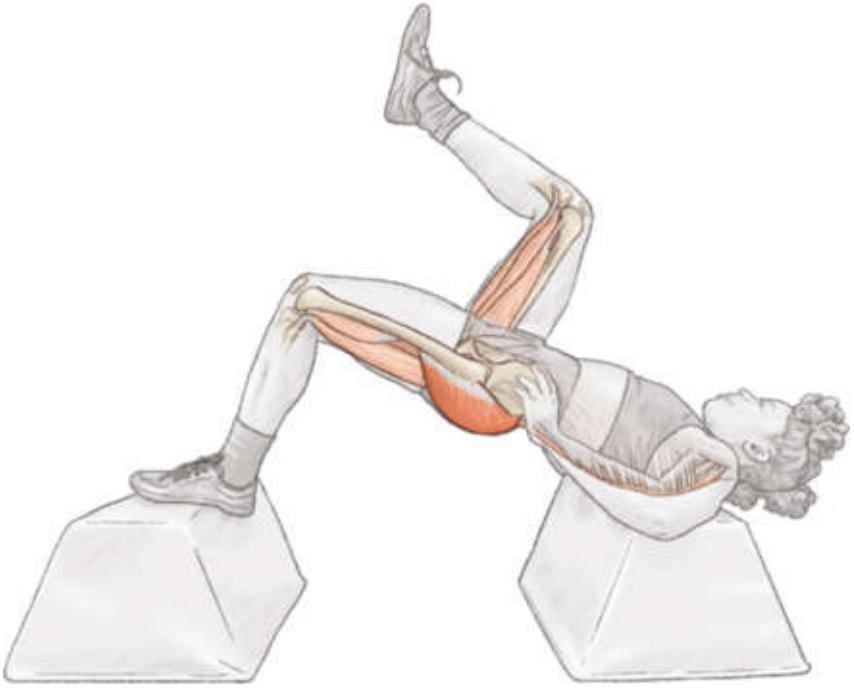


The shoulder-and-feet-elevated hip thrust is the most challenging bridging variation because it moves the hips through the greatest range of motion and considerably increases the demands on the hamstrings. Facing upward, place your upper back on a couch, sturdy chair, or weight bench and your feet on a small table, stool, or chair. The two surfaces should be roughly the same height. Extend your hips by squeezing the glutes. Push through your heels and keep the lower back neutral. Rise as high as possible through the hips and then lower them to the starting position.

The double-leg version is still challenging for many intermediate-level exercisers, although more advanced exercisers will require single-leg variations to sufficiently challenge their hip extensors. The reason the hamstrings work so much harder in this variation is because the hips drop lower than the feet, thereby requiring the hamstrings to produce a knee-flexion torque as well as a hip

extension torque. For this reason, this exercise works the hamstrings through both of its roles—hip extension and knee flexion.

Single-Leg Shoulder-and-Feet-Elevated Hip Thrust

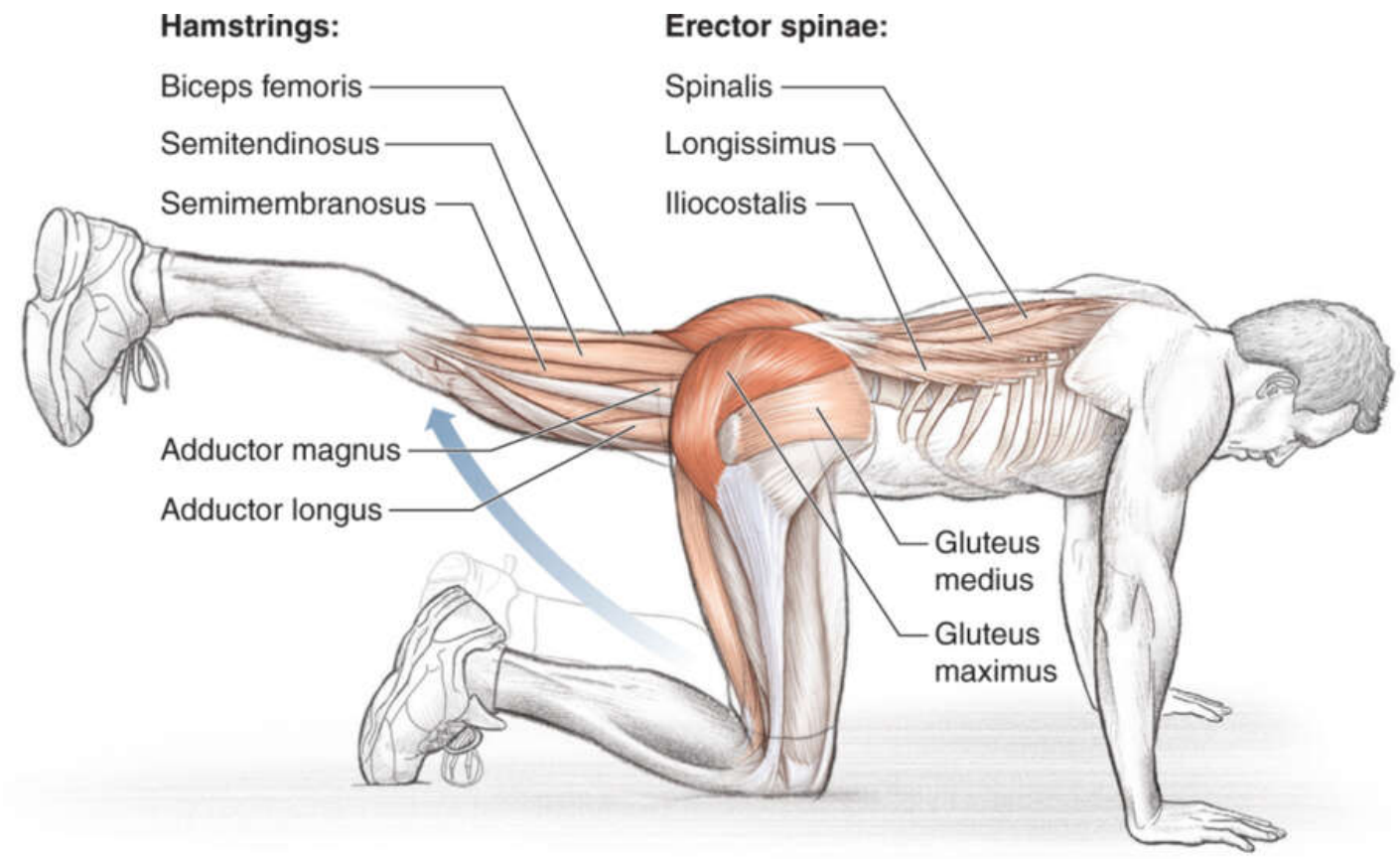


Once you reach proficiency in the double-leg shoulder-and-feet-elevated hip thrust, you can try the single-leg version. Many people foolishly rush into this variation before they're ready for it. The single-leg shoulder-and-feet-elevated hip thrust is likely the most challenging bodyweight exercise for the hips because it requires tremendous gluteal strength and stability. Frankly, most beginners and even most intermediate exercisers don't possess this strength. Take your time moving up through the exercise progressions so that by the time you start performing the single-leg shoulder-and-feet-elevated hip thrust, you can perform it correctly. This means moving the hips through a controlled and full range of motion while preventing lateral and rotational energy leaks. Pause briefly at the top of each repetition to ensure proper performance.

Partner Hip Thrust

The partner hip thrust provides a unique way to load the hip thrust without weights. The setup and execution follow the same pattern as the standard hip thrust. Have your partner sit across your lap either facing toward or away from you as you pause at the top of the lift with your hips fully extended, allowing them to comfortably get into position. To increase stability, have your partner stay compact, either pushing down on the tops of your knees or flexing their knees in and grabbing their own ankles. This variation has a learning curve at first, but with effective communication, adjustments can be made to maximize stability. Consider whether your partner is a lot taller than you are; using a taller platform to elevate your shoulders will be beneficial. If your partner is bigger than you, your reps will end up being more of a pulse.

QUADRUPED HIP EXTENSION



EXECUTION

1. Start on all fours (quadruped position) with your head, neck, and spine in neutral position; your hands under your shoulders; and your knees under your hips. There should be no flexion, extension, lateral flexion, or rotation in your neck and spine.
2. Kick one leg to the rear until you reach full extension.
3. Return to the starting position. Complete all repetitions on one leg before switching legs.

MUSCLES INVOLVED

Primary: Gluteus maximus

Secondary: Hamstrings (biceps femoris, semitendinosus, semimembranosus), erector spinae (spinalis, longissimus, iliocostalis), adductor magnus, adductor longus, adductor brevis, gluteus medius, gluteus minimus, multifidus

EXERCISE NOTES

The quadruped hip extension is a basic hip extension exercise that trains your ability to keep the spine and pelvis in a neutral position while the hips move through their full range of motion. Many beginners struggle with these movements because they're used to compensating with their erector spinae by anteriorly tilting the pelvis and hyperextending the lumbar spine. This creates the illusion of a full hip extension, but on closer inspection, full hip extension hasn't been reached. It is

important to learn to extend at the hips while keeping the spine and pelvis relatively neutral.

VARIATIONS

Bird Dog

The bird dog exercise builds on the quadruped hip extension by adding a diagonal upper-body movement pattern to complement the lower-body movement and allow for proper transfer through the core. During this movement, alternate between extension patterns of diagonal pairs—the left arm combined with the right leg and the right arm combined with the left leg. The diagonal movement patterns call on the spinal stabilizers to resist rotational movement, which makes for an effective core-stability exercise.

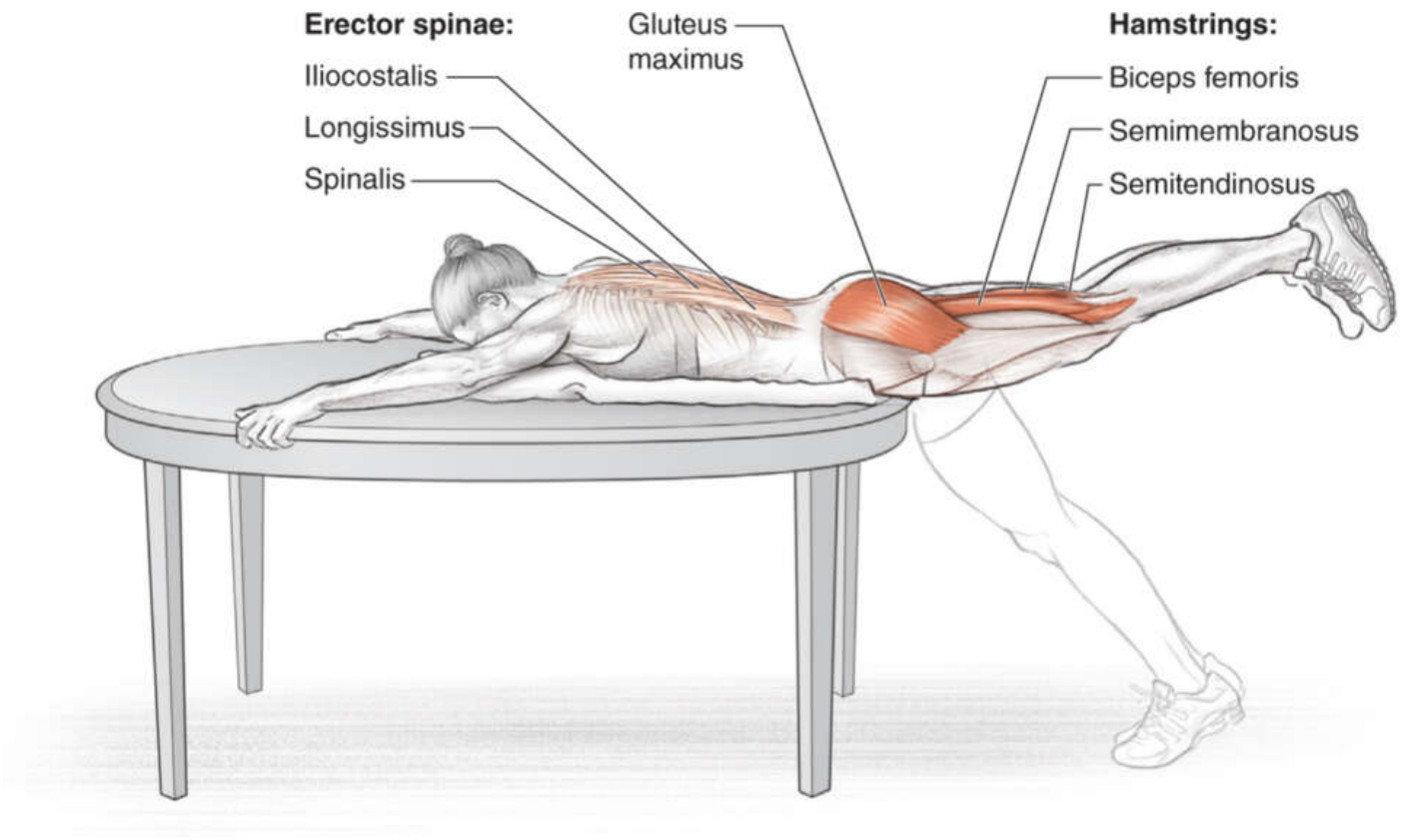
Quadruped Leg Swing

The quadruped leg swing is an advanced variation of the quadruped hip extension. Set up on a bench, which will allow you to go into deeper hip flexion compared to its conventional counterpart. Maintain a 30-degree bend in the knee of the working leg to prevent hamstring flexibility from being the limiting factor, allowing for more tension to be placed on the glutes. Lightly brace your core to prevent lumbar hyperextension from occurring.

Bent-Over Kickback Pulse

Brace onto a box or an upright frame and allow your torso to lean toward it to increase stability. Take a step back from the bracing point and hinge your hips slightly. Plant one foot into the ground and shift your weight over that midfoot. With the other leg, slightly flex your knee to prevent your foot from dragging on the ground. Contract the glute of your moving leg as hard as you can, allowing the leg to naturally swing back in an arcing motion. Keep your leg in the top one-eighth of the range of motion and pulse the reps while still maintaining a rigid torso and tension in your glutes.

REVERSE HYPER



EXECUTION

1. Lie with your torso across a sturdy table, draping your legs over the edge and grasping the edges of the table. Your knees should be straight.
2. Keeping your torso locked into place, raise your legs, making sure to squeeze the glutes up top and prevent overextension of your low back.
3. Lower your legs to the starting position, keeping your spine stable and making sure not to round the low back.

MUSCLES INVOLVED

Primary: Gluteus maximus, hamstrings (biceps femoris, semitendinosus, semimembranosus)

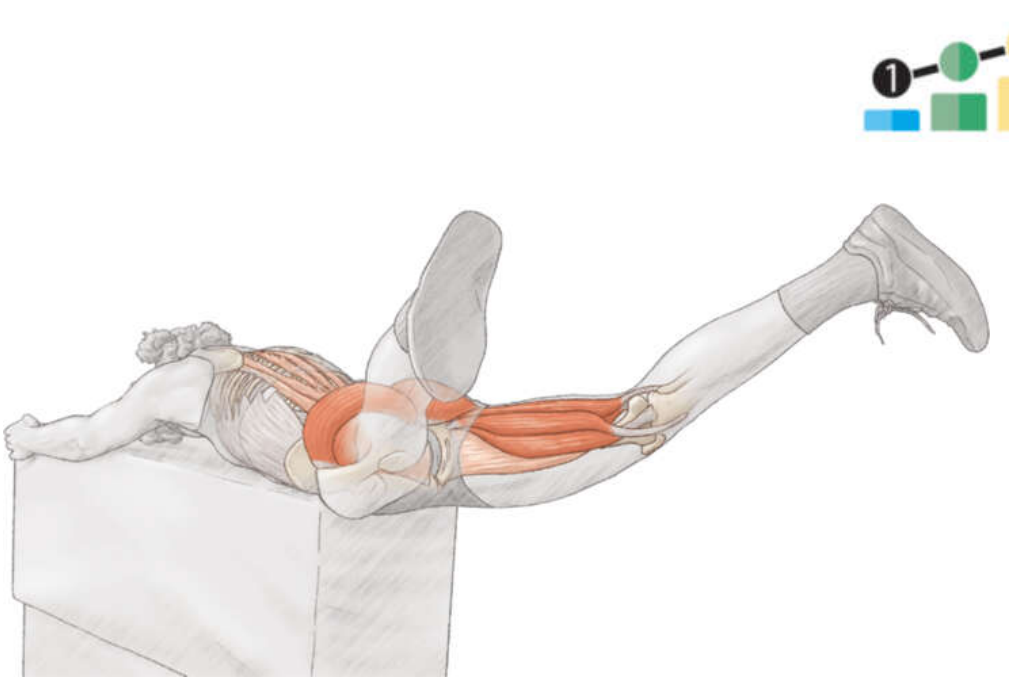
Secondary: Erector spinae (spinalis, longissimus, iliocostalis)

EXERCISE NOTES

The reverse hyper is an effective posterior chain exercise that works the entire back side of the body at once. Grip the edges of the table to keep your body secure and lock your spine into place. Look down to prevent hyperextending your neck. Get a big stretch in the hamstrings down low and squeeze the glutes forcefully at lockout. When done properly, the reverse hyper is an amazing lower-body and core movement that is highly beneficial to the spine.

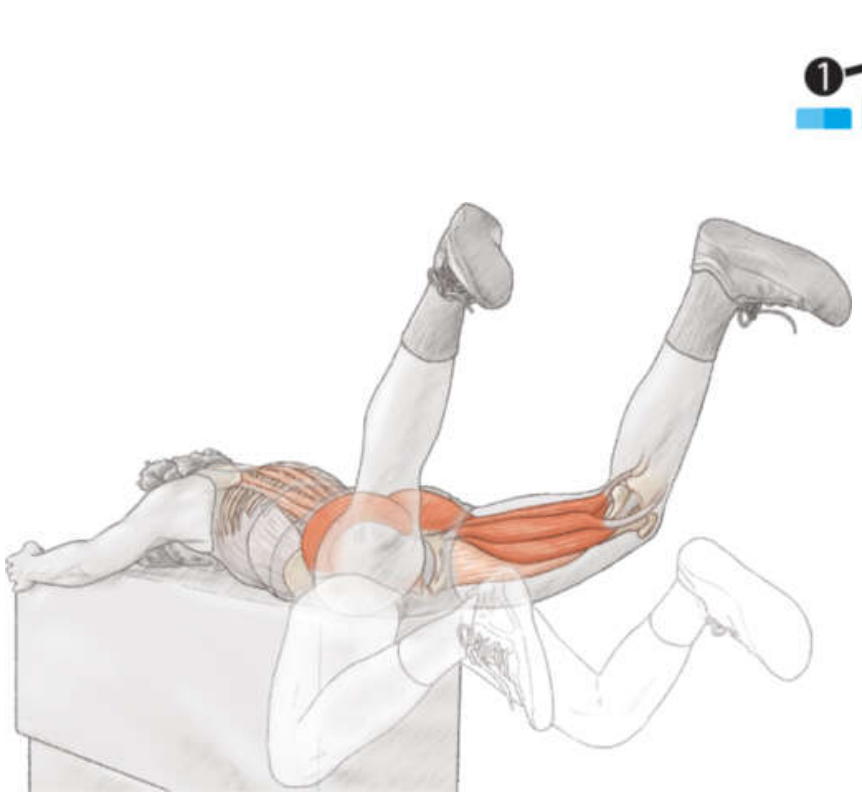
VARIATIONS

Spread-Eagle Reverse Hyper



The spread-eagle reverse hyper increases the demands of the standard reverse hyper by integrating hip abduction range of motion. Set up as you would a reverse hyper, but as you begin forcefully extending your glutes, drive your knees out at a 45-degree angle relative to your torso. You'll know you've reached full hip hyperextension when your knee, hip, and torso are aligned.

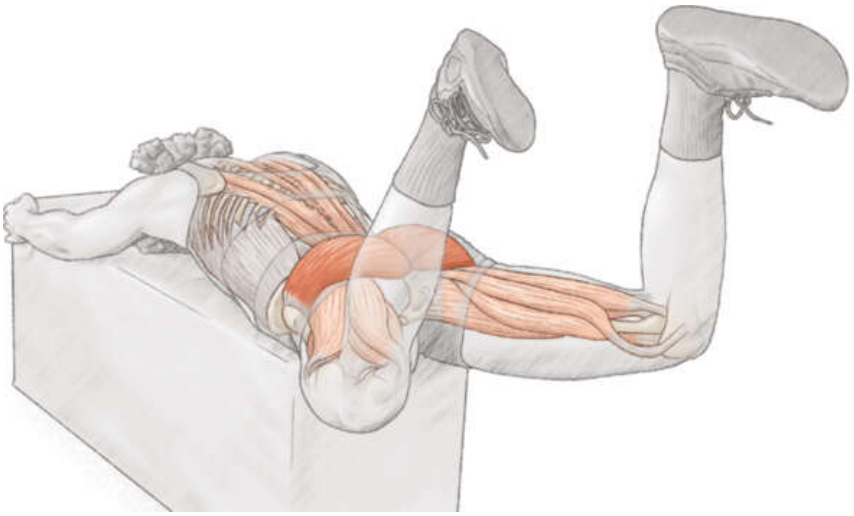
Bent to Straight-Leg Reverse Hyper



The bent to straight-leg reverse hyper allows for a greater range of motion on the bottom, increasing demands on the glutes. With a conventional reverse hyper, your hamstrings will be stretched out significantly more, limiting your ability to go into deep hip flexion at the bottom; by bending your knees, you're reducing the stretch in the hamstrings, allowing your hip to travel into

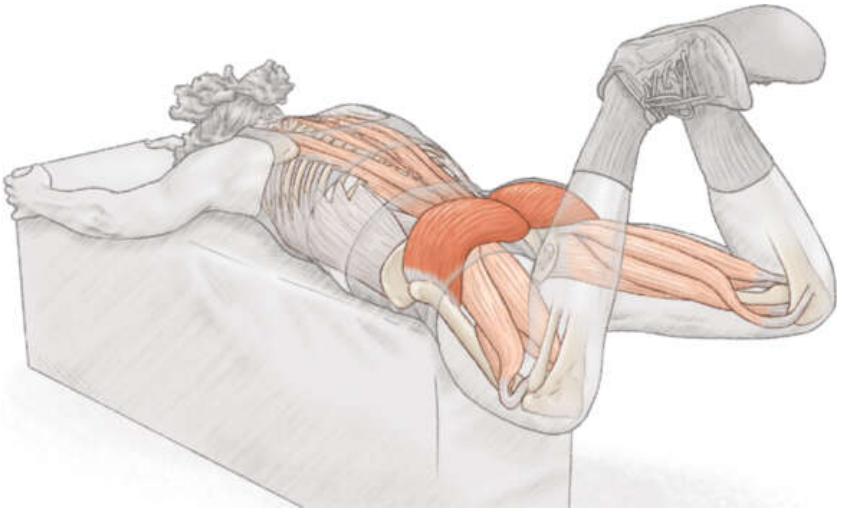
full flexion. This allows for a larger degree of hip extension range of motion, stimulating the glutes more. Since you're taking the knee through a range of motion, you can expect to hit the quads slightly more.

Bent-Leg Reverse Hyper



Keeping your knee flexed throughout the range of motion will prevent the hamstrings from being stretched, allowing a greater hip extension range of motion. Maintaining a consistent knee angle throughout the range of motion will minimize quad activation, which you'd normally get by extending your knee as you extend the hip with the bent to straight-leg reverse hyperextension. However, this comes at the cost of putting a less relative load on the glutes.

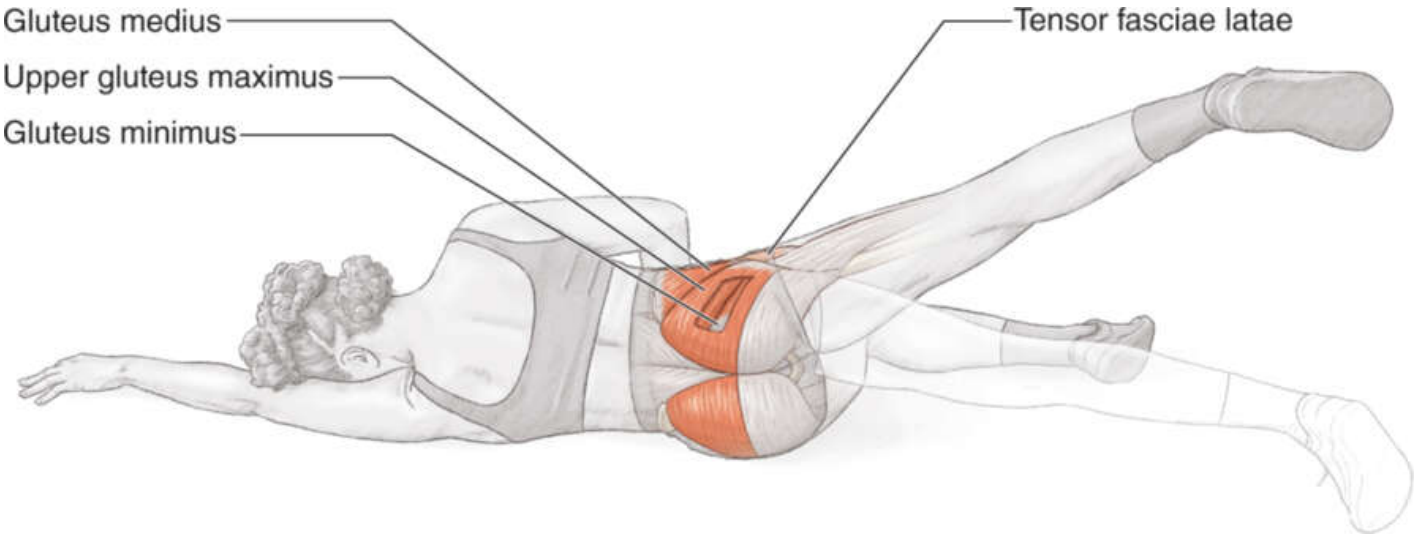
Frog Reverse Hyper



The frog reverse hyper puts the hips into an abducted position and maintains it throughout the

range of motion. As with any bent-leg reverse hyperextension variation, you'll be taking the hips through a large degree of hip extension range of motion, allowing for more glute stimulation.

SIDE-LYING HIP ABDUCTION



EXECUTION

1. Start in a side-lying position with the hip of the top leg extended and the hip of the bottom leg flexed around 90 degrees. Your neck rests on the arm on the ground. The other arm is braced on top of your hip. Internally rotate the top leg by pointing your toes toward the ground.
2. Allow the top leg to drape down until your toes are just above the ground. Raise your leg by abducting the hip while maintaining an internally rotated hip.
3. Return to the starting position. Complete the desired number of repetitions and repeat on the other side.

MUSCLES INVOLVED

Primary: Gluteus medius, gluteus minimus, upper gluteus maximus

Secondary: Tensor fasciae latae

EXERCISE NOTES

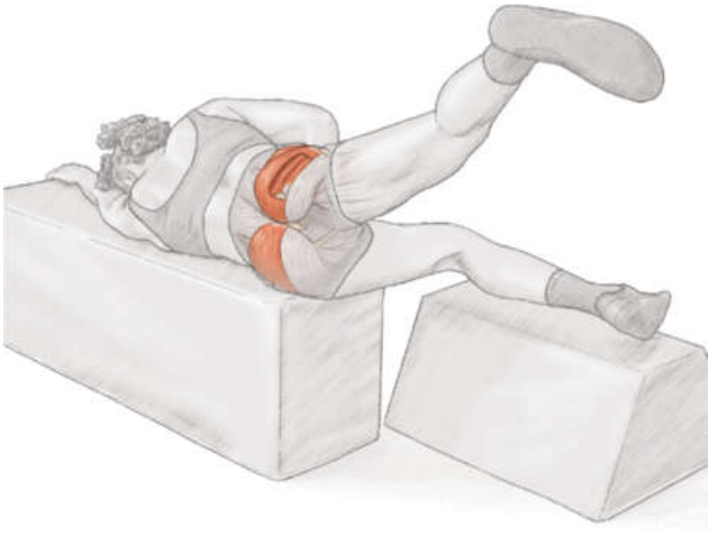
The side-lying hip abduction is a challenging hip abduction exercise that primarily works the gluteus medius. Set up by lying prone on your side, slightly shifting toward the front of your thighs. Flex your shoulder overhead to allow your head to lie on your arm and avoid straining the sternocleidomastoid. Flex the hip of your bottom leg 90 degrees while keeping the hip of your top leg extended. Internally rotate the hip of your top leg by pointing your toes toward the ground. Allow the top leg to lower until the toes are almost touching the ground. Perform the concentric phase by abducting the hip as much as your mobility allows, then return to the starting position. Perform the desired number of reps, switch sides, and repeat.

VARIATIONS

45-Degree Side-Lying Hip Abduction

The 45-degree side-lying hp abduction is a challenging hip abduction exercise that adds an extension element by moving the leg at a 45-degree lateral angle relative to the hip. The setup is the same as the conventional side-lying hip abduction; however, the execution requires an equal contribution of hip extension and hip abduction, allowing for a more well-rounded glute stimulus.

Extra-Range Side-Lying Hip Abduction

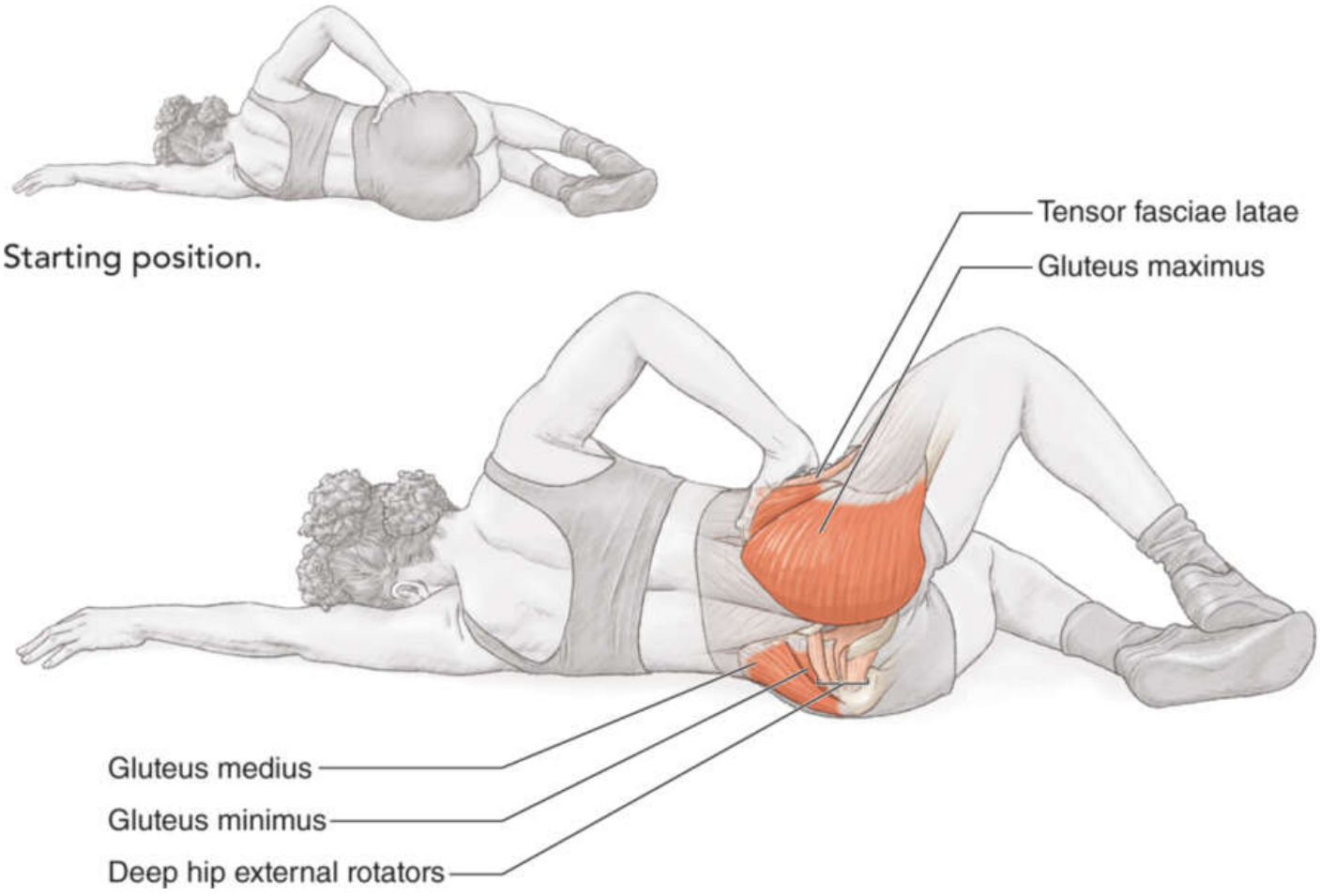


The extra-range side-lying hip abduction increases the difficulty of the conventional counterpart by increasing the range of motion. Start by lying on a sturdy bench with the nonworking leg resting to increase hip stability and the working leg dangling off the bench. The taller the bench, the more range of motion you'll be able to gain, further increasing the difficulty. Brace onto the bench to increase stability, because going into deep hip adduction will cause your body to shift. Execute this variation as you would the standard side-lying hip abduction but with your working leg going into as much hip adduction as your setup allows.

Transverse Extra-Range Side-Lying Hip Abduction

The transverse extra-range side-lying hip abduction increases the stretch on the gluteus medius by allowing range of motion in the transverse plane. Set up with the top leg draped off a bench to the front of your body rather than behind you. Starting with a small amount of hip flexion in the top leg is required to give space for your leg to fall in front of your back leg, which has an extended hip. Stabilize your torso to keep it from rotating by placing your upper hand against the bench. Once at the bottom position, both abduct and externally rotate your hip until your thigh is vertical, then return to the starting position.

SIDE-LYING CLAM



EXECUTION

1. Start in a side-lying position with your hips bent at about 135 degrees and your knees bent at about 90 degrees. Your neck rests on the arm on the ground. The other arm is braced on top of your hip.
2. With your heels touching each other, rotate the top hip up. Be sure to move at your hips. Don't lean to one side or move at the spine. The heels stay together for the entire set.
3. Return to the starting position. Complete the desired number of repetitions and repeat on the other side.

MUSCLES INVOLVED

Primary: Gluteus maximus, gluteus medius, gluteus minimus

Secondary: Tensor fasciae latae, deep hip external rotators (piriformis, gemellus superior, obturator internus, gemellus inferior, obturator externus, quadratus femoris)

EXERCISE NOTES

The side-lying clam is a surprisingly effective exercise and is a favorite warm-up movement of many clients who like to feel the burn in their glutes. When performed correctly, the movement creates a good burn in both the gluteus maximus and the external hip rotators. Many people

perform the exercise inefficiently by losing contact between their heels or leaning to the rear. This is a short-range movement that will strengthen external hip rotation, a critical joint action in sports.

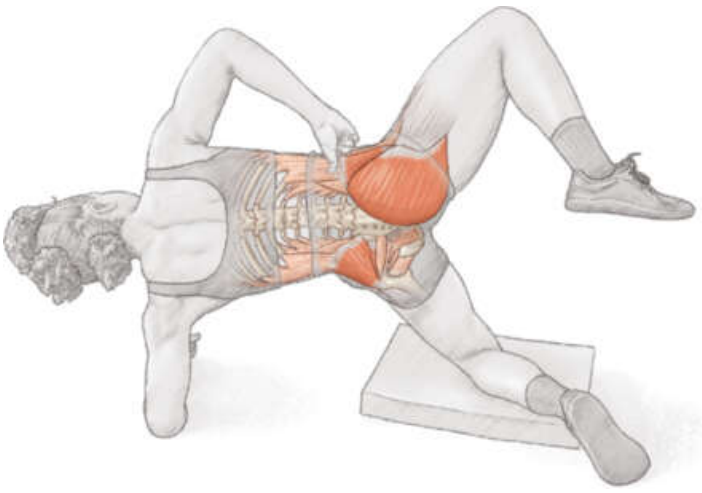
VARIATIONS

Side-Lying Hip Raise

The side-lying hip raise is an advanced movement that strengthens the upper glutes and core musculature. From a side-lying position, lift onto your lower elbow and place your hand of the other arm on your hip. Making sure your body is in a straight line from your shoulders to your knees, raise your body by simultaneously abducting the bottom and the top hip. Lower to the starting position. Complete the desired number of repetitions and repeat on the other side.

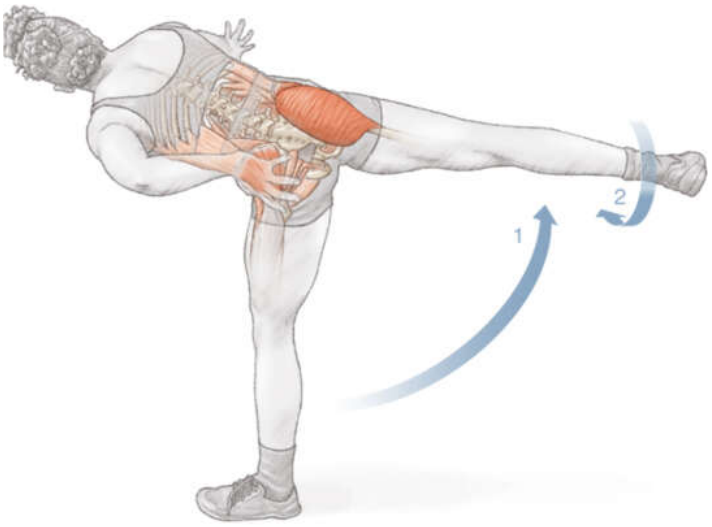
Keep a neutral hip position and avoid flexing forward at the hips. The bottom knee will always be bent, but the top knee can be bent (easier version) or straight (more difficult version), depending on the desired level of difficulty. Control your body through a full range of motion and avoid jerky movements. This exercise strengthens hip abduction, which is a critical joint action in sports.

Extra-Range Side-Lying Hip Raise



The extra-range side-lying hip raise increases tension in the glutes by increasing the abduction range of motion. Set up as you would a conventional side-lying hip raise but stack the shin of the bottom leg onto a soft yet stable surface. Allow your hips to sink laterally until they're just above the ground. From there, execute it as you would a conventional side-lying hip raise, abducting the hip of the bottom leg into the ground as you abduct the hip of the top leg.

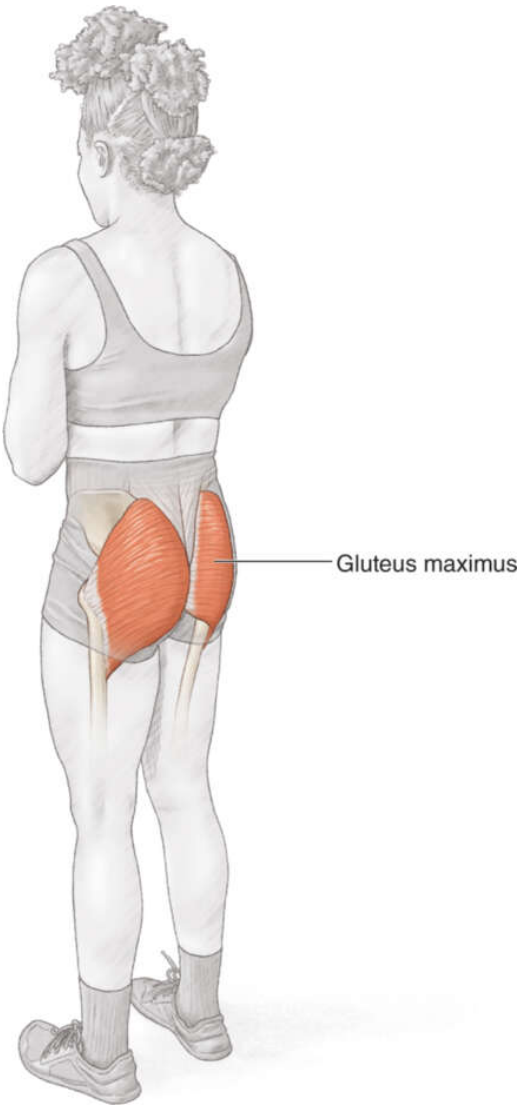
Braced Hip Airplane



The braced hip airplane will require you to set up by bracing against a stable surface or wall. First, hinge down into the bottom of a single-leg Romanian deadlift position with the back leg raised up to be in line with your torso (1). While maintaining this neutral position, internally rotate the hip of your grounded leg by turning the foot of the raised leg inward. After fully internally rotating the hip, reverse the direction to fully externally rotate the same hip by turning the foot of the raised leg upward (2). Complete the desired number of repetitions and repeat on the other side.

The hip airplane is commonly included in warm-ups before strength and conditioning workouts and as a corrective exercise in a physical therapy session. It is thought of as a hip rotation drill, but the external hip rotation action is more accurately described as hip abduction in the transverse plane, which involves not only the hip external rotators but also the gluteus maximus, gluteus medius, and gluteus minimus as well.

STANDING GLUTE SQUEEZE



EXECUTION

1. Stand upright with your toes facing forward.
2. Contract your glutes as hard as you can, allowing your hips to externally rotate and your feet to flare out.
3. Maintain the contraction for the designated duration.

MUSCLES INVOLVED

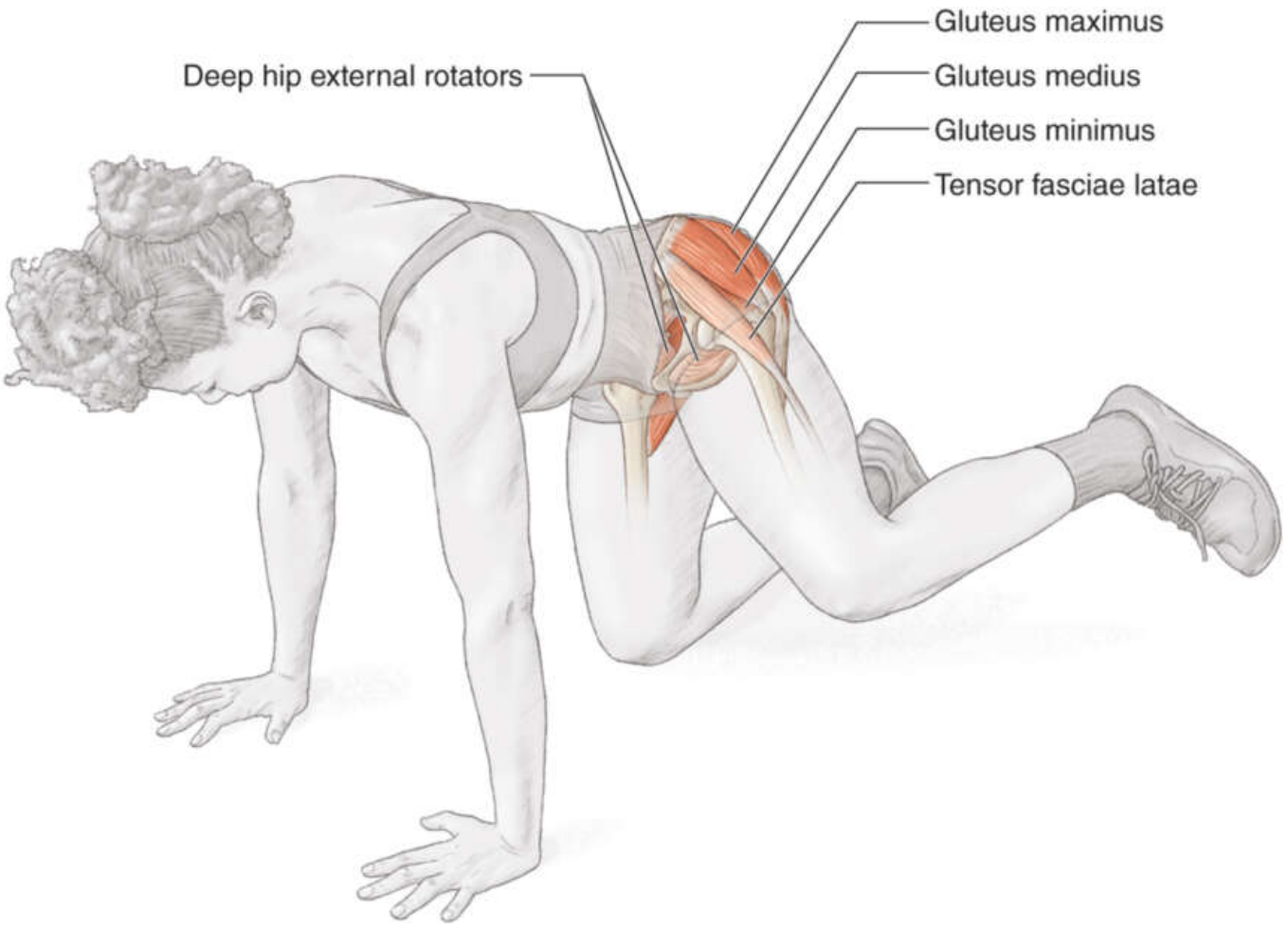
Primary: Gluteus maximus

EXERCISE NOTES

The standing glute squeeze is one of the best activation exercises that doesn't require any external equipment. Simply stand upright with your toes pointing forward and contract your glutes as hard as possible, allowing your hips to externally rotate, which will cause your toes to flare laterally. You can increase the sensation in your glutes by posteriorly tilting your pelvis.

FIRE HYDRANT

Starting position.



EXECUTION

1. Begin in a quadruped position, with your hands directly under your shoulders and your

knees directly under your hips.

2. Shift your weight over your planted leg.
3. Abduct the hip of the opposite leg as much as you can (more than what is shown), then return to the starting position. Complete the desired reps and switch legs.

MUSCLES INVOLVED

Primary: Gluteus medius, gluteus minimus, gluteus maximus

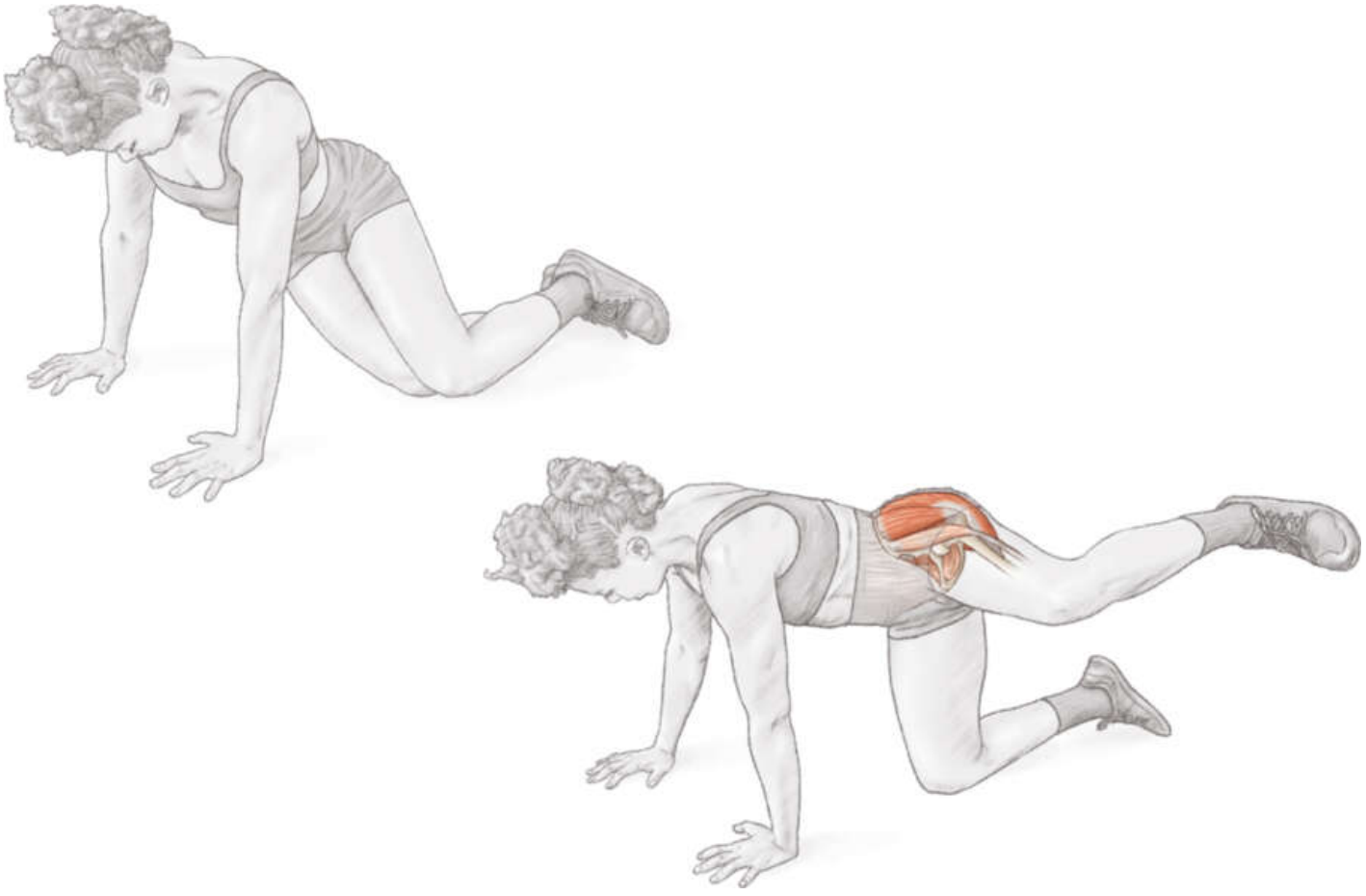
Secondary: Tensor fasciae latae, deep hip external rotators (piriformis, gemellus superior, obturator internus, gemellus inferior, obturator externus, quadratus femoris)

EXERCISE NOTES

The fire hydrant is a hip abduction exercise in the transverse plane that provides an effective stimulus for the gluteus medius. Much like other unilateral hip abduction exercises, both the glute of the planted leg and the moving leg are activated. This exercise takes the hip from a neutral position to a fully abducted position.

VARIATION

Extra-Range Fire Hydrant

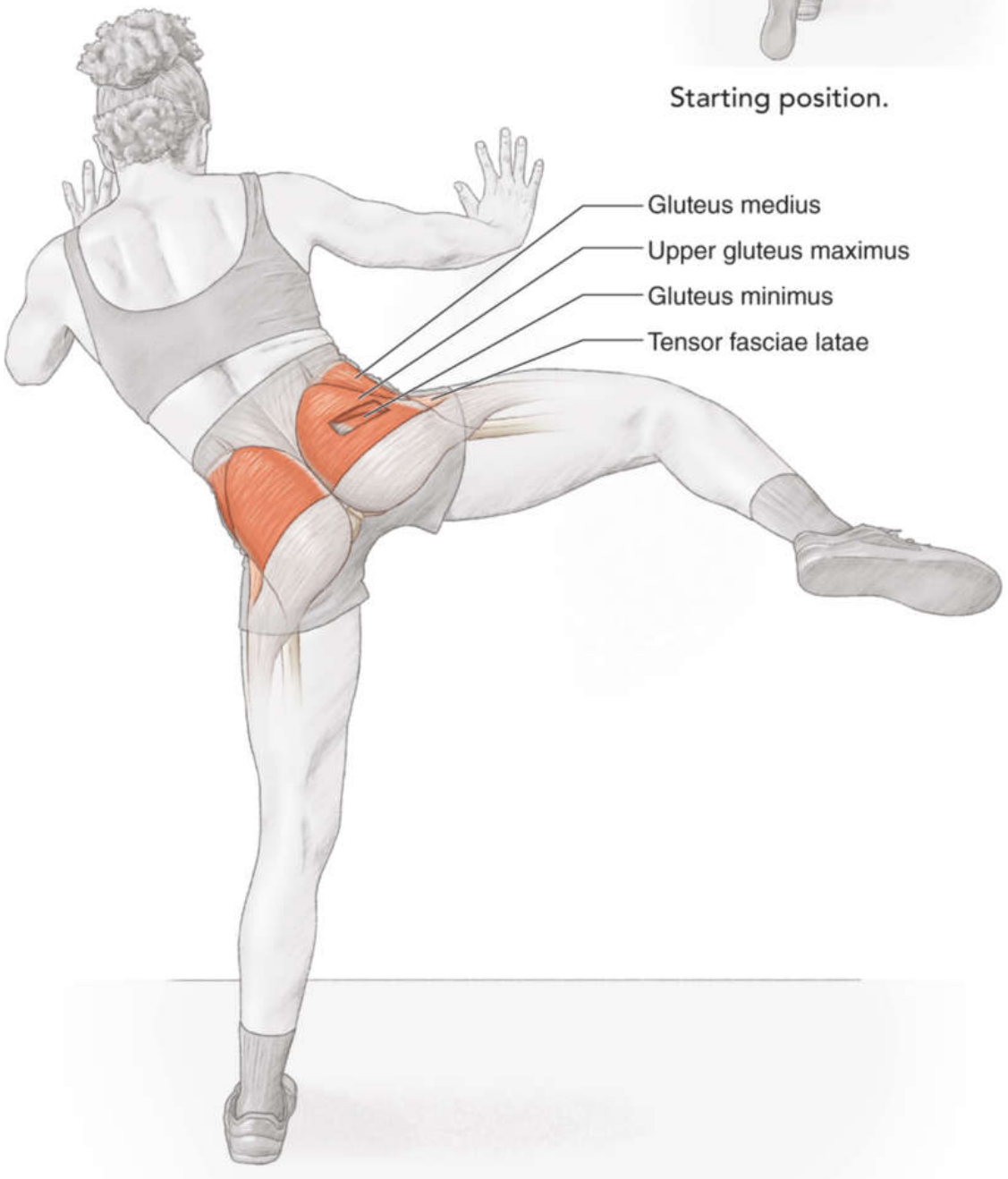


The extra-range fire hydrant improves on its conventional counterpart by increasing the range of motion of the hips. At the start, allow your hips to sink deep into an internally rotated and adducted position. This will highlight how much your planted leg is working, because you have to abduct to

get back to a neutral position before the moving leg begins abducting.

GLUTEUS MEDIUS HIP THRUST

Starting position.



EXECUTION

1. Stand and brace against a wall.

2. Shift your weight over your planted leg and sink your hips past the planted leg.
3. Drive your hip laterally toward the moving leg as you drive the knee of the moving leg directly to the side.

MUSCLES INVOLVED

Primary: Gluteus medius, gluteus minimus, upper gluteus maximus

Secondary: Tensor fasciae latae

EXERCISE NOTES

The gluteus medius hip thrust is a very challenging hip abduction and external rotation exercise. After bracing against a wall or frame in front of you, sink your weight into the hip of your planted leg, allowing it to go into an adducted position. Begin the movement by forcefully abducting off the planted leg, beginning to abduct your moving leg only once your planted hip has reached a neutral position. This will target the glutes of both the planted leg and the moving leg significantly.

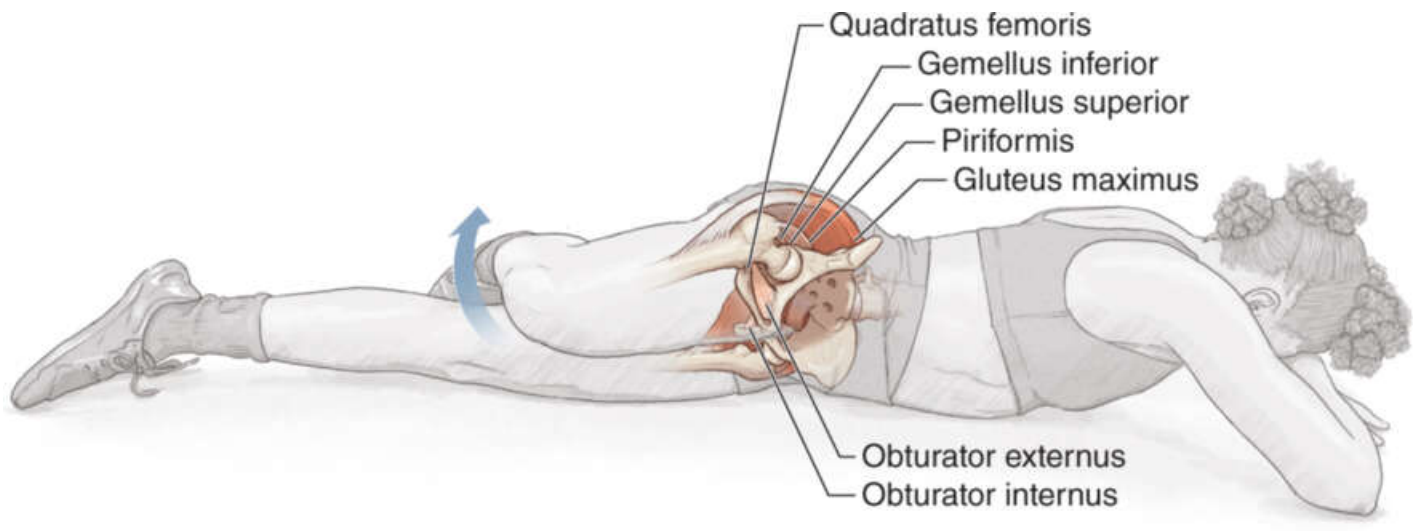
VARIATION

Hip Hike

The hip hike setup is similar to the gluteus medius hip thrust, but the exercise is easier in comparison because the leg is not lifted, the hip is just tilted up (hiked). All the movement comes from loading the planted hip into an adducted position, then abducting as much as you can without

allowing the thighs to physically separate from each other.

PRONE FIGURE-4 GLUTE RAISE



EXECUTION

1. Start in a prone position on the ground with your forehead resting on the back of your hands or wrists with your palms down.
2. Keeping your left leg straight, bend your right knee and place the inside of your right ankle and foot on top of your left knee. The result is a figure-4 position of your legs.
3. Without lifting your right ankle off your left knee, rotate the right hip to lift your right knee off the ground. Don't overly rotate your torso or lean to lift your hips off the ground. Instead, focus on contracting your right glute to create the movement.
4. Hold the top position briefly and then return to the starting position. Complete the desired number of repetitions and repeat on the other side.

MUSCLES INVOLVED

Primary: Gluteus maximus

Secondary: Deep hip external rotators (piriformis, gemellus superior, obturator internus, gemellus inferior, obturator externus, quadratus femoris)

EXERCISE NOTES

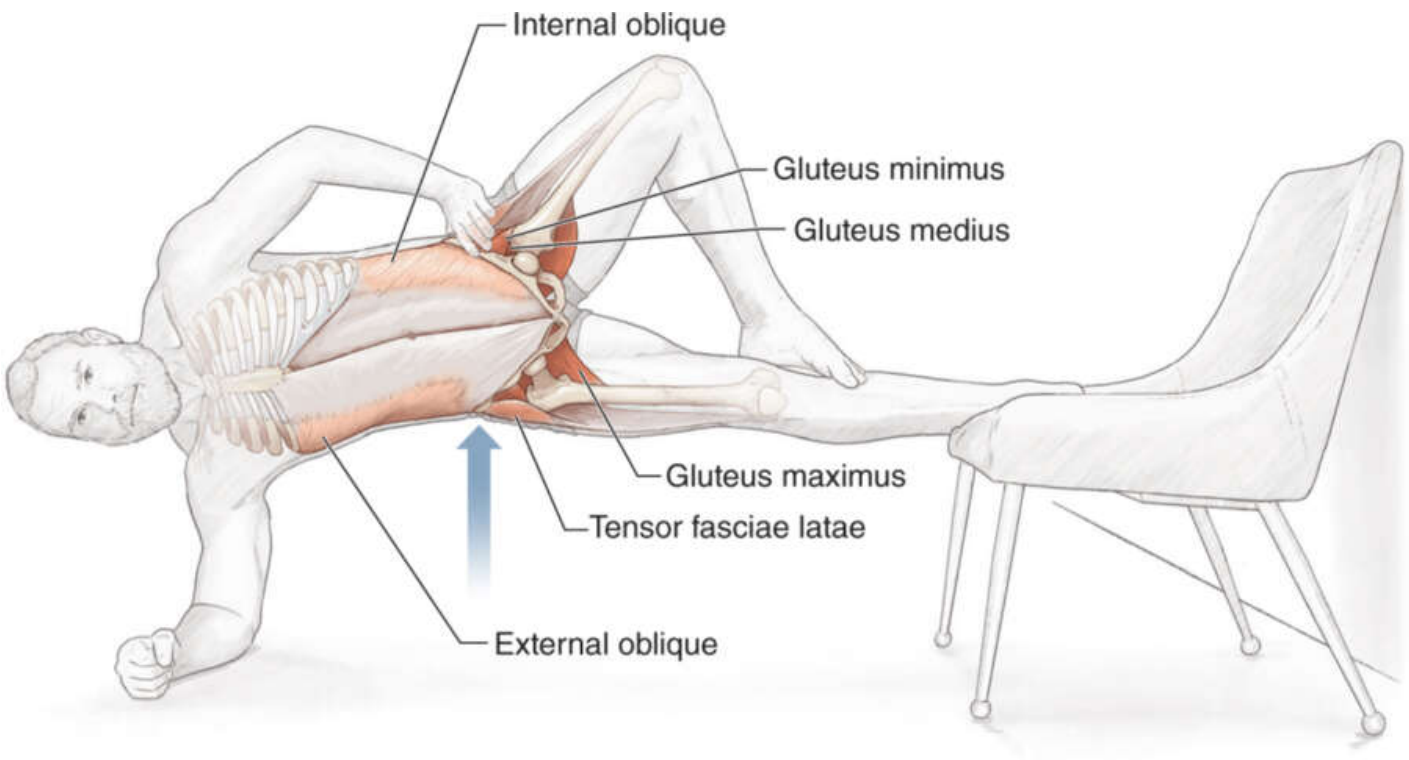
The prone figure-4 glute raise is particularly beneficial for engaging the glutes without overly activating the hamstrings. Avoid the common mistake of rolling the hips and lower back away from the ground. To perform the exercise correctly, the movement requires a concentrated contraction of the glute of the lifted leg.

VARIATION

Extra-Range Prone Figure-4 Glute Raise

The extra-range prone figure-4 glute raise increases the difficulty of the prone figure-4 glute raise by increasing the range of motion in the hip of the lifted leg. Instead of lying prone on the ground, get into a similar position as the prone figure-4 glute raise exercise but while lying on the edge of an ottoman, cushioned coffee table, or daybed in a planked position. Bend the right knee to firmly lock the left foot in position and allow the left leg to fully relax so the left knee is pointing at the ground. Lift the left leg as high as possible without rotating your torso.

SIDE PLANK ABDUCTION



EXECUTION

1. Begin in a side plank position with your right leg placed on top of a chair, table, or couch and your left foot placed on the inside of your right knee.
2. Staying in the frontal plane (side to side with no rotation), allow your hips to sink until your right gluteus medius is maximally stretched.
3. Rise by abducting your right hip to lift your hips as high as possible while squeezing your right gluteus medius.
4. Hold the top position briefly and then return to the starting position. Complete the desired number of repetitions and repeat on the other side.

MUSCLES INVOLVED

Primary: Gluteus medius, gluteus minimus, tensor fasciae latae, upper gluteus maximus

Secondary: External oblique, internal oblique

EXERCISE NOTES

The side plank abduction is a very challenging movement that requires balance and coordination as well as advanced levels of gluteus medius strength. At first, it will be difficult to prevent rotation and hip flexion, as your body will naturally want to follow the path of least resistance. Focus on staying completely side to side in the frontal plane. You'll feel the upper glutes stretch at the bottom of the movement. Make sure to hold the top for a 1-second count; you can usually elevate the body an extra inch by really squeezing the gluteus medius.

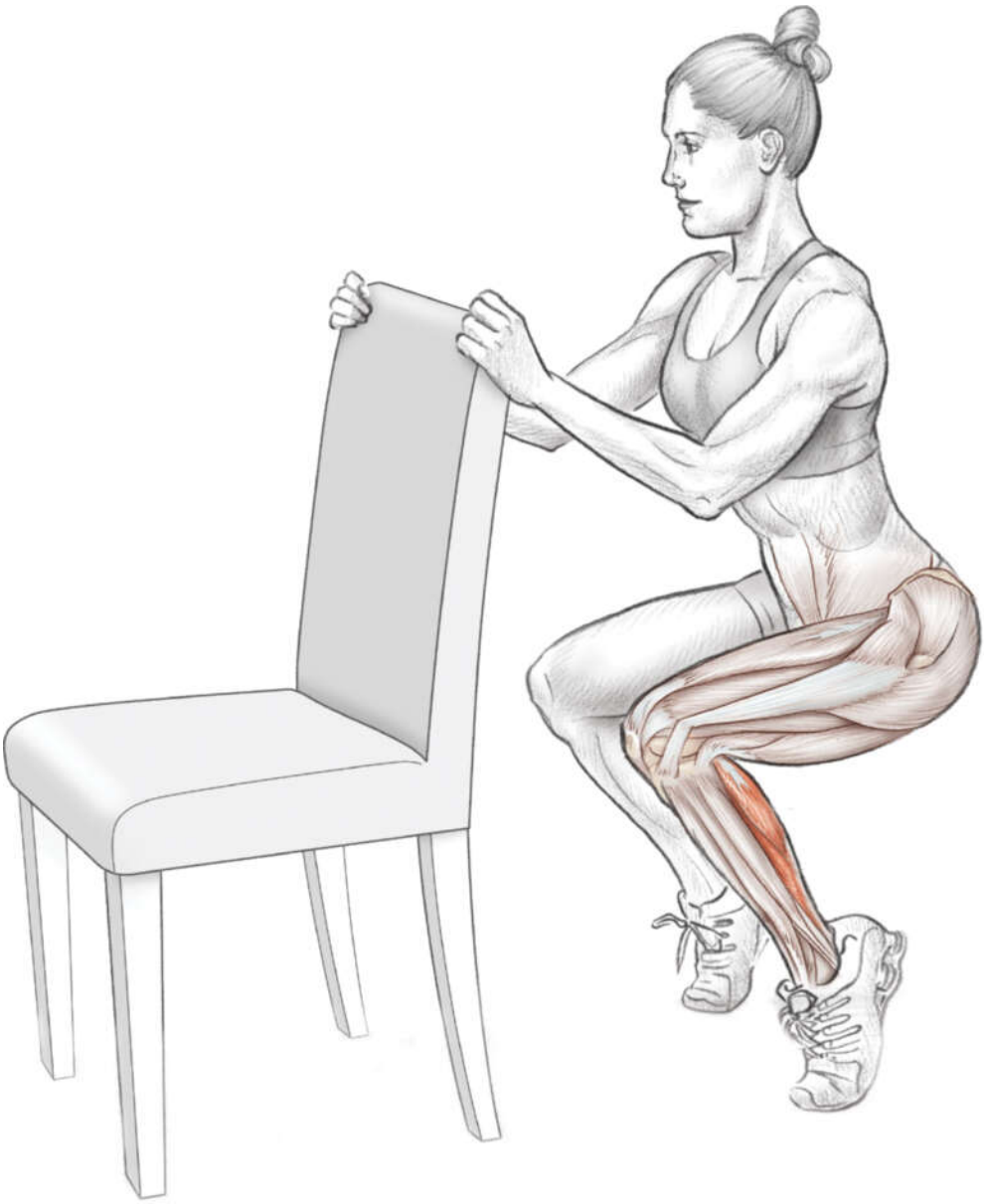
CHAPTER 9

Calves

The calves are a unique muscle group. Many people find that no matter what they do, they struggle to grow their calves, whereas certain lucky people don't even have to train them directly to achieve impressive lower-leg development. A substantial genetic component affects calf aesthetics, and it's difficult to override your genetic blueprint. Favorable genetics for calf development provide long muscle bellies, short Achilles tendons, and good fast-twitch to slow-twitch fiber ratios. However, many people have overcome their limits and developed impressive calves through hard work and consistency. For example, Arnold Schwarzenegger used to hide his calves when he was photographed but was eventually able to turn his poor calf development into a strong point by working the muscles relentlessly with an aggressive combination of volume, intensity, and frequency.

If you're one of the lucky ones who don't have to perform direct calf work to sport muscular calves, then chances are you take this genetic gift for granted. But if you have toothpicks for lower limbs, you'd probably go to great lengths to achieve muscular symmetry in this area of the body. Strength and development in the lower limbs are important.

If you think of walking as a short-range bodyweight calf raise, then you'll realize how acclimated the calves are to low-intensity training. Fit individuals tend to get at least 10,000 steps per day—that's a lot of reps for the calves! To get the calves to grow, you need to use strategies that place maximum tension on the calf muscles because they're already quite accustomed to lower-intensity activities.



Calf Muscles

When people speak of the calves, they usually mean the gastrocnemius and soleus muscles (figure 9.1). These two muscles and the plantaris muscle, a muscle that is only 2 to 4 inches (5-10 cm) long and is absent in about 10 percent of the population, share a common tendon, the Achilles tendon. The gastrocnemius has two distinct heads: the lateral head and the medial head. The soleus lies under the gastrocnemius and is a monoarticular muscle that crosses only the ankle joint, so it is not mechanically affected by the knee angle. The same cannot be said of the gastrocnemius, which is a biarticular muscle that crosses the ankle and knee joints and is therefore shortened and inhibited when your knee is bent. For this reason, bent-knee exercises that use plantar flexion (bends the foot downward) such as the seated calf raise exercise targets the soleus muscle and not the gastrocnemius muscle.

Although the soleus and gastrocnemius both serve as plantar flexors (they elevate the heel when standing), only the gastrocnemius can produce mild knee flexion, especially when your knee is more extended. Many other lower leg muscles assist in plantar flexion, including the plantaris, peroneus longus, peroneus brevis, flexor hallucis longus, flexor digitorum longus, and tibialis posterior.

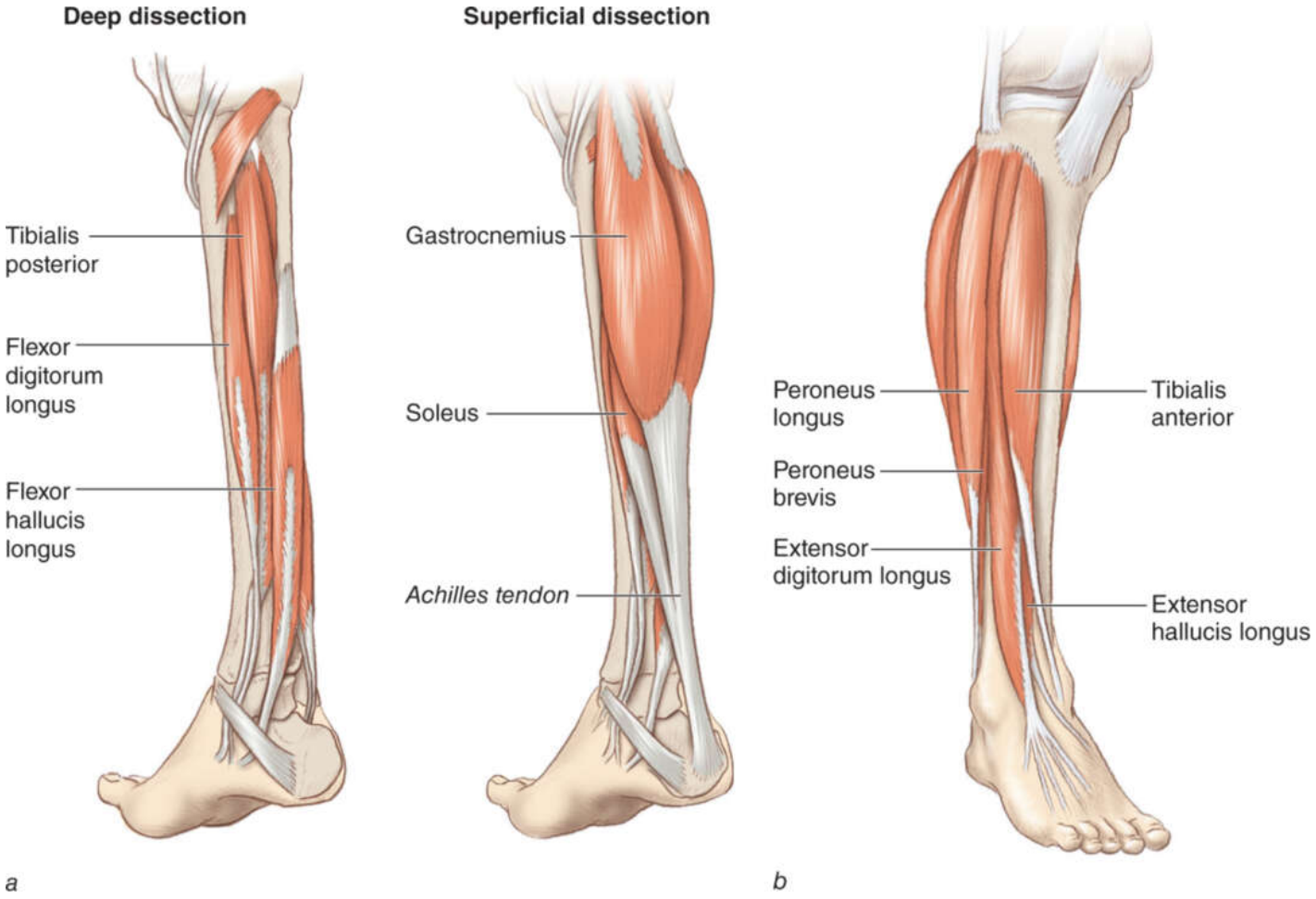


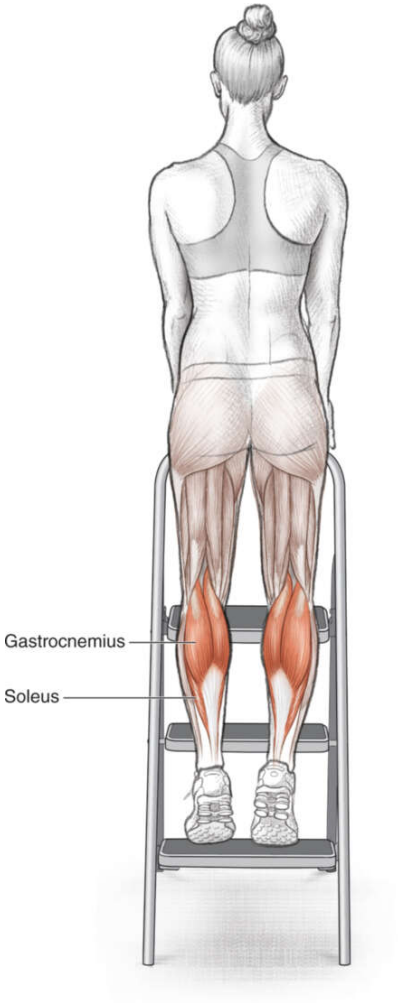
Figure 9.1 Lower-leg muscles: *(a)* back, including both deep and superficial dissection, and *(b)* front.

Compared to the gastrocnemius, the soleus generally has a much greater percentage of slow-twitch fibers and thus has been shown to initiate slow contractions. The gastrocnemius tends to initiate faster contractions. It is possible to target the lateral or medial head of the gastrocnemius by varying foot position. An externally rotated position (feet pointed out) activates the more medial (toward the center of your body) gastrocnemius, whereas an internally rotated position (feet pointed in) activates the more lateral (toward the outside of your body) gastrocnemius. Research indicates that to gain muscle size (hypertrophy), it is not necessary to perform seated calf raises (because standing calf raises grow the soleus just as effectively) or include the top portion of the range of motion of a calf raise exercise, as lengthened partials (movement only at the bottom portion of the range of motion) grow the calves just as effectively as full range of motion reps. Moreover, ending a set of calf raises with some *additional* lengthened partial repetitions increases calf growth.

Calf Actions

The calf muscles are used during low-level activity such as standing and walking, and they provide a considerable amount of stability for balance. In sports, the calf muscles are highly activated when running, jumping, sprinting, and cutting from side to side. The soleus is more important for vertical jumping than the gastrocnemius. The gastrocnemius is highly activated during the propulsive phase of ground contact in sprinting. Therefore, you should strengthen both muscles. In sport, it is important to not only possess strength in the lower-leg musculature but also power and stability. Plyometric activities, which repeatedly and rapidly contract and stretch the muscles, will help increase these qualities.

ELEVATED CALF RAISE



EXECUTION

1. Begin with your toes on a sturdy platform or step and your body upright.
2. While grasping something for balance, lower your body and feel a good stretch in the calves.
3. Raise your body as high as possible on your toes, holding the top position for a 1-second count. Repeat until the desired number of repetitions is completed.

MUSCLES INVOLVED

Primary: Gastrocnemius, soleus

EXERCISE NOTES

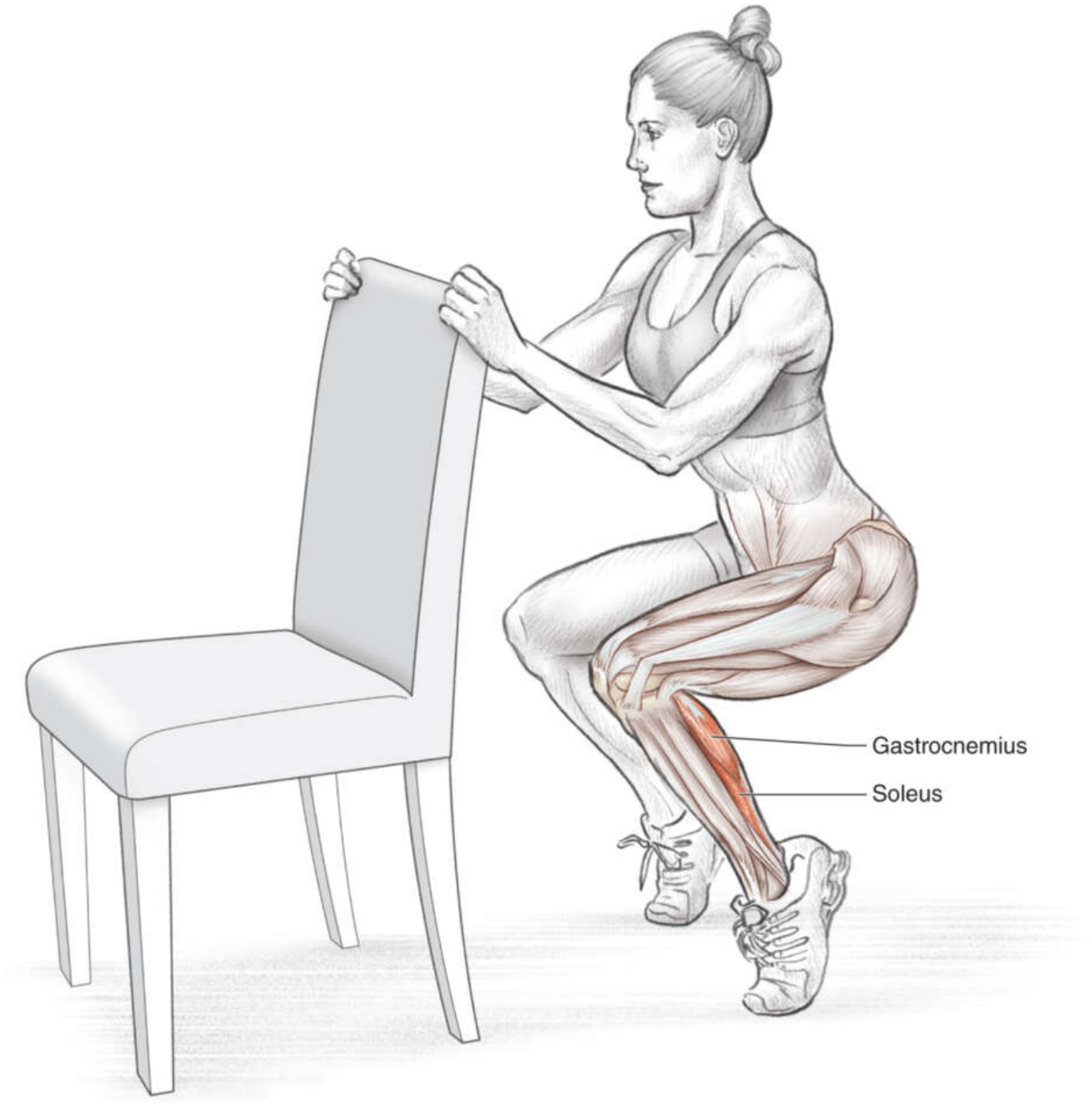
The elevated calf raise is an excellent exercise and can be done using high repetitions. Many people skimp on their range of motion with this movement. Sink deep and rise all the way up when you perform this exercise. Sometimes you can perform faster repetitions that are bouncier, while other times you can perform the repetitions under strict control, holding the top position for extended times and lowering your body very slowly for an accentuated eccentric component.

VARIATION

Single-Leg Elevated Calf Raise

Once the double-leg elevated calf raise becomes easy, move to the single-leg variation. Make sure you sink into this movement and load up the working leg to its full potential. Remember to pause for a second at the top of the repetition. I still struggle to achieve 20 repetitions of this movement.

SQUAT CALF RAISE



EXECUTION

1. Begin with your weight on your toes and sink into a parallel squat position so your knees are bent to about 90 degrees.
2. While grasping something for balance and holding your hip and knee positions steady, lower your body at your ankles and feel a good stretch at the ankle joints.
3. Raise your body as high as possible onto your toes, holding the top position for a 1-

second count. Repeat until the desired number of repetitions is completed.

MUSCLES INVOLVED

Primary: Soleus, gastrocnemius

EXERCISE NOTES

The squat calf raise takes the gastrocnemius muscle out of the movement and targets the soleus for muscle activation. This movement is a little tricky, so focus on proper form. Keep your hip and knee angles in a static position while moving solely at the ankle joints. This requires getting used to because you'll initially want to squat up and down by extending the hips and knees. Keep the hips and knees in place and raise your body through plantar flexion only. The quadriceps and glutes get a good isometric workout during this exercise.

CHAPTER 10

Planning Your Program

Now that I've shown you the best bodyweight exercises, it's time to teach you how to put together a training program. A few factors in program design will influence your likelihood of success, and I'd like to address them right off the bat: individualization, autoregulation, structural balance, and progression.

Individualization

It is important to design a program that you like. The best routine is the one you'll be most consistent with. Here is how I individualize my own strength training program: I love squats and push-ups but only if performing low repetitions. High repetitions of squats and push-ups make me cringe. For example, performing 100 nonstop bodyweight squats or 50 nonstop push-ups hurts me just thinking about it; I prefer performing lower repetitions when I train. So, I don't perform bodyweight squats or regular push-ups anymore. I perform only bodyweight squatting exercises that use one leg at a time (called *unilateral movements*) to increase the difficulty and keep me in my desired rep range. It's not that I don't think high-repetition squats and push-ups are effective—quite the contrary. I just can't stand doing them and would dread working out if I had to do them every week.

As another example, I abhor performing many sets of unilateral exercises. For example, doing four sets of Bulgarian split squats or self-assisted one-arm push-ups destroys me. However, these are extremely effective exercises, so I compromise by performing just one or two sets per unilateral movement using each limb. You should look forward to your workouts, not fear them. Tinker with your programming to make your workouts more productive. Don't blindly stick to a program for years without making adjustments. Over time, you will become the master of your body, and you'll be able to design more effective programs.

Autoregulation

It is critical to have a plan in place when embarking on a training regimen, but you don't have to always rigidly stick to the program. It is fine to stray from the planned routine and adjust based on what your body is telling you (biofeedback). By autoregulating your workouts, you'll see greater progress because no program can predict your physiological and psychological status every day. Too many factors are at play for an accurate estimation. For example, the quality and quantity of sleep you got the night before, how much bad stress (distress) versus good stress (eustress) you have in your life, how motivated you are, and your level of recovery from the past week's workouts can all affect how well you perform in a given training session.

If you're feeling beat up, back off and take it easy for a session or two. If you're motivated, perform an extra set or two. If a certain exercise doesn't feel right, omit it for the day. Adjust the effort, volume, exercise selection, and other variables when you train based on how you feel but don't feel compelled to stray simply for the sake of straying. It's also perfectly fine to stick to the plan as long as the session feels right.

Structural Balance

When designing your routine, consider not only the muscles you are working during the session but also the movement patterns you are training. The major muscle groups include the traps, delts, pecs, lats, biceps, triceps, abs, glutes, hams, quads, adductors, and calves. You should work all

these muscle groups throughout the week. However, think in terms of movement patterns to ensure proper structural balance. Synergy exists between the various movement patterns, and balancing these patterns keeps the joints in proper alignment and prevents unnecessary joint stress. For the upper body, you can press and pull in vertical and horizontal planes. For the lower body, you can perform knee-dominant (for your quads) or hip-dominant (for your hamstrings and glutes) exercises. Core training involves linear exercises as well as lateral and rotary exercises. Allow me to elaborate.

A push-up (page 44) is a horizontal pressing exercise that primarily strengthens the muscles on the front of your torso. An inverted row (page 96) is a horizontal pulling exercise that primarily strengthens the muscles on the back of your torso. If all you ever do are push-ups and you never do inverted rows, you risk developing adducted scapulae and internally rotated shoulders. (Your shoulders would round forward, and your arms would turn inward.) Inverted rows prevent these negative postural adaptations by strengthening the muscles that counteract these tendencies by training the muscles on the back of your torso.

A wall handstand push-up (page 32) is a vertical pressing movement while a pull-up (page 108) is a vertical pulling movement. When executed with proper form, these exercises work in tandem to create balanced shoulder and scapular (shoulder blade) stability, which helps keep the shoulders healthy.

The full squat (page 122) is a knee-dominant exercise because the knee joint moves through a large range of motion, and the quadriceps are taxed heavily. If all you ever do is squat, you'll leave plenty of room on the table for hamstring and glute development. You could also develop knee problems caused by quad dominance, and you'd lack strength in end-range hip extension.

A reverse hyper (page 193) is a hip-dominant exercise because the movement revolves primarily around the hip joint, with the prime movers being the glutes and hamstrings. The reverse hyper strengthens the posterior chain (the muscles of the back of your hips and legs), which encourages using the hamstrings and gluteal musculature while squatting, so you sit back more and rely on the stronger hip muscles to execute the squatting motion. This practice spares the knees and keeps the joints healthy.

Certain core exercises work primarily in the sagittal plane, which means they produce or prevent movement in linear (front-to-back) patterns. This contrasts with core exercises that produce or reduce movement in lateral (side-to-side) and rotary (twisting) patterns. Examples of linear core exercises are the crunch (page 66), bent-knee sit-up (page 74), and front plank (page 76). Examples of lateral core exercises are the partner-assisted oblique raise (page 80) and the side plank (page 79). Examples of rotary core exercises are the windshield wiper (page 85) and the bicycle (page 68). It is wise to have a strong core in all directions, so be sure to include a balance of linear, lateral, and rotary core exercises.

Last but not least, it's beneficial to incorporate single-limb training into the mix rather than sticking solely to double-limb exercises. Single-limb training works muscles differently than double-limb exercises do. For example, a Bulgarian split squat (page 135) requires the hip adductors and the hip abductors to fire in synchronization to stabilize the femur (the thigh bone) and keep the knee joint tracking properly over the foot. Single-leg stability is critical for optimal performance.

To provide another example, a one-arm push-up (page 54) not only requires considerable pectoral, shoulder, and triceps strength but also rotary stability throughout the core region to prevent the body from shifting and rotating. This is why you should include single-limb training in your program. As you advance, single-limb training becomes critical for bodyweight training because double-limb training won't always provide an adequate challenge unless you perform 50 reps or more, and not everyone wants to do a high number of reps every workout.

To reiterate, an ideal routine has a good balance between horizontal pressing and pulling, vertical pressing and pulling, knee-dominant and hip-dominant exercises, linear, lateral, and rotary core exercises, and bilateral (double-limb) and unilateral (single-limb) movements. It is not mandatory to include every pattern in each workout or to perfectly balance the number of sets you perform for opposing movement patterns. It's okay if most of your exercises are performed bilaterally. It is important remember the idea of structural balance and avoid skewing your programming toward any particular movement pattern.

The exercise finder in the front of the book lists all the exercises and identifies them based on the categories discussed in this section.

You will use the exercise finder if you stick with a full-body routine. If you choose a lower–upper split routine, a push–pull routine, or a body part split routine, you will simply choose exercises according to the muscles you are working and won't need to use the finder. But it's still a good idea to understand the movement patterns of the exercises rather than just the muscles worked, so I recommend that you pay attention to the exercise finder regardless of the training routine you choose.

Now I'd like to discuss how the nature of your training goals affect your programming.

Training Goals

People choose to exercise for many reasons. Some want to improve their general health, some want to build larger muscles, some want to shed fat, some seek to get stronger, some hope to improve their functional strength and athleticism, and some strive to eliminate joint dysfunction and prevent injury. Bodybuilders seek maximum hypertrophy (muscularity), powerlifters seek maximum strength, weightlifters seek maximum power, and sprinters seek maximum speed. It should come as no surprise that their training methods differ substantially because training for a particular purpose affects the way a person trains.

Sport-Specific Training

There is too much hype surrounding sport-specific training. While it is true that athletes from different sports require unique types of strength and energy system development, ideally, every athlete should display sound movement patterns and athleticism. This is why it's essential to master the basics as you lay the foundation for subsequent adaptations.

Analyze your sport and perform exercises that use the same muscles and mimic the movement patterns and directions found in the sport, but don't get so carried away that you lose sight of the basics. All athletes should possess balanced strength and mobility. Single-leg exercises, such as the Bulgarian split squat (page 135) and single-leg hip thrust (page 188), and core-stability exercises, such as the RKC plank (page 78) and the side plank (page 79), are great for everyone.

Strength

When you train for maximal strength, perform multijoint movements, stay in lower-repetition ranges, and rest more between sets. With bodyweight training, this is not always feasible. For example, the squat, bench press, and deadlift are three of the most popular exercises in resistance training because they use a lot of muscles and allow you to lift large loads. However, in bodyweight training, although you can tweak exercises to make them easier or more challenging according to your level of strength, the most resistance you'll ever use is equal to your body weight, so it can be difficult to develop maximal strength solely through bodyweight training.

The best approach to developing maximal strength through bodyweight training is to lay down an excellent foundation of flexibility, stability, and motor control. This provides a base for future gains and advancement to more challenging exercise variations. I read an interview with a U.S. Olympic gymnastics coach who said that although his gymnasts never performed resistance training and solely performed bodyweight exercises, many of them could bench press double their bodyweight and deadlift triple their bodyweight. A person who performs advanced variations of bodyweight exercises can develop impressive levels of strength. Master the basics and then progress to single-limb exercises, plyometrics, and other advanced methods.

As I mentioned in chapter 1, I was shocked to find many of my clients set bench press personal records their first time benching when returning from the gym after several months off. It turns out that they were doing push-ups every day. Push-ups are an excellent bench press assistance exercise. More advanced lifters can perform exercises such as the self-assisted one-arm push-up (page 55) and build impressive bench press strength without ever touching a barbell.

Hypertrophy

When training for maximum muscularity, make sure you perform a wide variety of exercises to develop all muscle subdivisions. You need to get strong to be muscular. While strength is paramount for hypertrophy, the relationship isn't linear. Always feel the intended muscles working and use controlled form through a full range of motion. While compound movements are the hallmark of any sound strength training program, single-joint movements are vital for maximizing muscle growth. For example, the long head of the triceps and the rectus femoris don't grow much from multijoint movements such as push-ups and squats, respectively. Research shows that you have to perform triceps extension and knee extension movements to maximize their growth. When training with just body weight, you will need to perform knee flexion movements to maximize hamstring growth because you won't have any way of substantially loading a compound stiff-leg deadlift or good morning pattern. A variety of repetition ranges may be ideal for muscle growth to maximally stimulate all muscle fibers. While this hasn't exactly been shown to be true in the literature, it does have a logical basis. And even if it doesn't, training is more fun when you mix harder stuff for lower reps and lighter stuff for higher reps.

Body Part Specialization

Sometimes you'll want to focus on building a particular area of the body, perhaps the delts, glutes, upper pecs, or lats. In this case, you simply need to cut back slightly on work for the rest of the body while adding work for the weaker muscle group. Other times, you may want to improve a particular skill. For example, you might want to be able to perform a one-arm push-up (page 54) or a pistol squat (page 132). You can train the skill frequently while scaling back the rest of your routine. You can't continuously add to your programs. When you add something, you have to take something out, or you run the risk of overdoing it and stagnating or, worse, regressing.

Let's say that you can't perform a chin-up (page 14). Rather than just performing back exercises a couple of times per week in your regular program, you could choose to perform two sets of negative chin-ups (meaning that you just work on the lowering phase of the movement, jumping up to the bar for each rep) several times each day. When you are relatively weak, you don't stress the body as much when exercising, so the added frequency will expedite your progress and allow you to perform regular chin-ups in much less time. But stick to just one movement or one body part at a time. If you try to pick two movements or two body parts, it's no longer a specialization routine. You're just getting greedy. Don't go overboard, or you'll pay the price by stagnating.

Fat Loss

When focusing on weight loss, retain as much muscle as possible to ensure that the pounds shed are composed of fat rather than muscle mass. This is the key to a quality physique. Remember that what builds muscle keeps muscle, so your training doesn't have to change much. Train for strength and simply increase your daily step count (e.g., take 10,000 steps per day) and focus heavily on your diet. More on this later in this chapter.

Now it's time to tell you about acute training variables in strength training.

Training Variables

You should understand the common training variables in strength and conditioning. I'll briefly touch on each of them.

Split

Training split refers to how you divide your workouts throughout the week. Several popular training splits exist. The most common are full-body training, lower–upper splits, push–pull routines, and body part splits.

During full-body training, you work the entire body each session, so technically you're not splitting anything. This approach is wisest for bodyweight training. In lower–upper splits, you work half of the body in one session and the other half of the body in the next session. For example, you work legs one session and the upper body the next session. Push–pull routines alternate between sessions that work the pushing muscles (quads, chest, shoulders, triceps) with sessions that work

the pulling muscles (hamstrings, back, biceps). Body part splits focus on one or two body parts each session—for example, chest and triceps, back and biceps, legs, or shoulders and arms.

Bodybuilders tend to stick to body part splits. Powerlifters tend to stick to lower–upper splits. Olympic lifters and strongmen tend to stick to full-body training. People who perform only bodyweight training are drawn toward full-body training, and they develop amazing physiques, as do gymnasts. When you examine the routines of people who are achieving the best possible physiques with bodyweight training, you realize that most are performing full-body routines. Therefore, I recommend the full-body split, but I also support lower–upper and push–pull routines for bodyweight training. I'm not a fan of body part splits for bodyweight training, but I'll still teach you how to program for it just in case it is your preference.

Exercise Selection

This training variable is probably the most poorly understood variable in the world. Folks don't seem to want to stick to exercises within their current level of capability. When you go to the gym and see hips sagging during push-ups, bodies flailing during chin-ups, backs rounding during deadlifts, and bars rebounding off chests during bench presses, you quickly realize that most people have a compelling need to feel strong and athletic. Unfortunately, they're doing more harm than good by using too much weight or performing exercises that are too advanced for their abilities.

It is imperative to understand regressions and progressions. For example, a box squat (page 120) is easier than a full squat (page 122), a split squat (page 134) is easier than a Cossack squat (page 137), and a torso-elevated push-up (page 48) is easier than a feet-elevated push-up (page 49). Stick with the proper exercise variation for your current level of ability, and once you've mastered it, progress to a more challenging variation. If you can't perform a particular exercise properly, find a way to make it easier so you can perform it properly. By regressing to a simpler variation, you'll develop sound motor patterns that will allow you to progress more rapidly.

Consider structural balance when you choose your exercises and vary the exercises over time to reduce the risk of habituation and boredom. You'll always perform the same basic movement patterns, but different exercises provide the novel training stimulus needed for continuous positive adaptation.

Exercise Order

The exercises you perform first in the routine will produce the best stimuli and respond best to your training. If you want to improve your chin-ups, perform them first in your sessions. If your goal is to raise your pistol squat from 3 to 10 repetitions, do them first in the workout. Whatever you're trying to improve most, prioritize it in your programming.

Alternate between agonistic and antagonistic movements—opposing motions such as pushing and pulling in the horizontal plane—in your training sessions. This gives your body natural rest periods. For example, you can perform a set of push-ups, then a set of inverted rows, rest, and repeat. This is called *antagonistic pairing*, and it allows you to keep your metabolism revved while providing increased rest time for the working muscles. The key is to select movements that don't interfere with each other and that use opposing patterns. Don't choose push-ups and handstand push-ups or squats and lunges for pairing because they train many of the same muscles.

In general, the largest muscle groups should be trained first and the smallest should be trained last, unless you are specializing in a particular body part. Perform knee-dominant exercises (quads) first, then hip-dominant exercises (hamstrings and glutes), then upper-body pulls (back), then upper-body presses (chest and shoulders), and then core and targeted exercises that involve smaller muscles (abs, obliques, biceps, triceps).

If you're an athlete performing power training, strength training, and conditioning in the same session, do them in that order. Train power such as plyometrics and sprints when you're fresh, do strength in the middle, and train for conditioning last.

Frequency

Training frequency usually refers to the number of days per week you train. Exercisers typically train two to six days per week, with three to five days being the most common. The number of days

you train depends on your personal situation, but I recommend choosing frequency over volume, which I'll explain in the next section. It's more fruitful to train four days per week for 30 minutes a session than to train two days per week for 60 minutes a session. Whatever you choose, make sure you train the entire body each week. *Frequency* can also refer to the number of times you train a particular exercise (e.g., push-ups) or muscle (e.g., pecs). But usually it means the number of training days you schedule per week.

Volume

Strength coaches argue over optimal volume. Some believe that low volume is ideal, while others believe that higher volume is better. Usually, the truth lies somewhere in the middle. Since the first edition of this book was written, we have learned that the ideal amount of volume is higher than we used to believe. Whether these immense amounts of volume are sustainable, however, is still up for debate.

Volume generally refers to the number of hard sets you perform per week or per session. For example, a low-volume session could include one set of six exercises, whereas a high-volume session could include three sets of eight exercises.

Research has shown that no matter how many sets you perform, the first set is by far the most important, and subsequent sets become less important. The law of diminishing returns applies to programming. For example, performing a set of push-ups is good, performing 3 sets is even better, but performing 20 sets is not ideal. There comes a point at which additional sets become counterproductive because the muscles can't repair themselves for future sessions.

Of course, form and effort are factors here. Lifters who have crummy form can't handle as much volume because they are harming their joints to a greater degree every time they exercise, and lifters who don't push the effort envelope very far can handle plenty of volume. Volume and effort are inversely related. You can train hard or you can train long, but you can't do both.

The type of split also influences volume considerations. A lifter performing full-body routines does the exercises in a fresh state every session, so the volume is always high-quality volume. A lifter performing body part split routines might not be fresh every time. Consider the following workout for the chest and triceps: three sets of deficit pike push-ups (page 27), three sets of feet-elevated push-ups (page 49), three sets of dips (page 56), three sets of sliding flies (page 58), and three sets of table triceps extensions (page 8). After a while, the pecs, front delts, and triceps are highly fatigued, and your performance on each set will suffer drastically. At some point, if you keep increasing your volume and end up performing 30 sets or more in a workout, you have to consider whether you're stimulating strength gains and growth or just running yourself into the ground.

The rule is to perform 10 to 20 working sets per week on each muscle. But due to recent research, the industry has largely shifted this number to up to 30 sets per week, especially if specializing in a particular movement or body part (e.g., push-ups, or glutes). I train women who are most interested in growing their glutes, and my programs involve around 36 sets per week for glutes. This is manageable because the volume is blended between vertical hip extension exercises such as squats and lunges, horizontal hip extension exercises such as hip thrusts and back extensions, and lateral movements such as extra-range side-lying hip abduction and side-lying hip raises, and they aren't doing a ton of work for the rest of the body. In other words, they're not also trying to perform 30 sets or more per week for the quads, hams, shoulders, and arms.

Everyone recovers differently, and recovery can be affected by exercise type and muscle group. I wish I could perform more volume for my quads, but above around 12 hard sets per week, my knees start hurting. I typically just do one hard set of deadlifts per week because they beat me up and can make me feel sluggish the following day. My advice is to learn your body and tinker with volume. You'll be able to carry out more volume for some exercises and muscles depending on your anatomy, mechanics, and physiology.

Load

Load refers to the amount of weight you lift. This is more applicable to resistance training when you're using barbells, dumbbells, and machines, but it can also apply to bodyweight training if you understand biomechanics. Some exercises involve more load than others. For example, a push-up

involves about 68 percent of one's body weight, not 100 percent, because there are several points of support, and the body is at an angle at the top of the movement. Elevating your feet increases the percentage of body weight in the push-up, elevating your torso or doing push-ups from your knees decreases the percentage of body weight, and performing a one-arm push-up dramatically increases the loading on your shoulder joint. As you progress to more challenging exercises, your load increases in terms of the percentage of body weight you're placing on the musculature.

Effort

Effort is simply how hard you push yourself during the session. We use two different scales to measure effort. The first is rate of perceived exertion (RPE), and the other is reps in reserve (RIR). In general, you want to take most of your sets close to momentary muscular failure. Most people don't push themselves that hard, which explains the lackluster results they see from their training. A small percentage of people push themselves too hard, which can also be counterproductive. With bodyweight training, you can't always grind out reps like you can with certain machine, cable, or free weight movements. For your working sets, always push yourself within five sets to failure. Most often, leave 1 to 3 reps in the tank. Sometimes you can go to actual failure.

You can also consider session effort. Some days you'll feel great and push it at 95 percent. Other days, you'll strive for 70 percent. If you push too hard for too long, you'll spin your wheels by overreaching. The body has a natural way of asking you to back off, and it's important to listen to biofeedback and pay attention to these signals.

Rest Periods

Rest periods are how long you rest in between your sets. Typical recommendations in the gym are 30 seconds to 5 minutes. I've even rested up to 10 minutes after a heavy set of squats or deadlifts. Sometimes you need time to recover and psyche yourself out for a brutally heavy set. But with bodyweight training, these psyche-ups won't be necessary. I recommend resting two minutes between sets, or three minutes when you really need it, most of the time. And sometimes rest for one minute when you're more toward the end of your workout and doing smaller movements as you go for the mind–muscle connection and not personal records.

If you train during a strict window of time, for example on your one-hour lunch break, then here is something to consider. *Training density* generally refers to the amount of work you do per session. If you perform a 60-minute workout but rest 5 minutes between each set, you end up performing just eight sets, and your workout is not very dense. Conversely, if you perform 25 sets in 60 minutes, your session is quite dense. There's an optimal balance because strength training is not supposed to mimic aerobic exercise. You should push hard and then rest between sets, but don't rest too long.

More challenging exercises such as the pistol squat (page 132) and the side-to-side pull-up (page 112) require more rest between sets, whereas simpler exercises such as the crunch (page 66) and bird dog (page 191) do not require much rest. Antagonistic pairing is a way to increase training density, but don't get too hung up on using this strategy. The exerciser who does circuit training but fails to get stronger over time doesn't realize nearly as much muscle growth as the exerciser who dramatically increases strength, even if the training isn't very dense.

Tempo

Tempo is the rhythm or cadence you develop when you lift weights, and it's an interesting variable to tinker with because bodyweight training lends itself well to tempo alterations. Tempo is usually indicated with four numbers. The first number refers to the eccentric (muscles lengthen during contraction) or lowering portion of the repetition, the second number to the isometric (pause) at the bottom of the movement, the third to the concentric (muscles shorten during contraction) or rising portion of the repetition, and the forth number to the isometric (pause) portion at the top of the movement. So a 1-0-3-0 tempo requires an exerciser to lift the body weight in one second and then lower it in three seconds for each repetition. A 2-1-4-1 tempo calls for two seconds eccentric, one second of isometric pause at the bottom, and four seconds of concentric, and one second of isometric pause at the top, for each repetition. That's eight seconds per rep, which is brutal! It's also

the upper end of how slowly you can optimally perform your repetitions for muscle growth.

An isohold is holding a movement in a static position for a set time. You can hold the bottom position of a Hindu push-up (page 50) or walking lunge (page 138) to build mobility and stability in those positions. You can also hold the top of a sheet-assisted pull-up (page 111) or single-leg glute bridge (page 184) to build strength and stability in those positions. Dynamic (moving) contractions are often superior to isometric (not moving) contractions for hypertrophy.

A pause repetition requires you to pause briefly (usually one to five seconds) at a certain position in the exercise—for example, the bottom of a short-lever push-up (page 45) or a deficit Bulgarian split squat (page 136) or the top of a towel inverted row (page 97) or a B-stance hip thrust (page 187).

Eccentric-accentuated repetitions are performed by slowly and gradually lowering yourself eccentrically. For example, you could lower yourself in the bench dip (page 18) for a count of four seconds. Sometimes all you can do is perform negatives until you build the strength to perform a positive (concentric), which is perfectly fine.

I recommend that you provide variety in bodyweight training by manipulating the tempo and using unique repetition strategies. However, you must keep track of the tempo for progressive overload purposes. You'll be able to perform more repetitions of an exercise performed rapidly (e.g., 0.5-0-0.5-0 tempo, or one second per repetition) versus an exercise performed slowly (e.g., 4-1-1-0 tempo, or six seconds per repetition). Toward the end of the set, your tempo will likely break down if you push it close to failure. Most of the time, I recommend explosive concentric contractions with controlled eccentric contractions. And you don't always have to pay attention to tempo, either. Counting all the time can throw you off and distract you. I use it mostly for pausing and eccentric-accentuated reps.

Periodization

Entire books have been written about periodization, so I'll try to be brief. *Periodization* simply refers to how you switch up your workouts over time. Lifters who have a goal and a plan see much better results than those who waltz into the gym aimlessly and just fool around.

You can periodize your workouts in an infinite number of ways. For example, one month you perform higher repetitions; the next month, medium repetitions; and the following month, lower repetitions. Or, maybe you incorporate isoholds one month, accentuate the negative portion of certain exercises the next month, and incorporate plyometric exercises the month after that. You could focus on core strength for two weeks, then upper-body strength for two weeks, and then lower-body strength for two weeks. You can also switch the focus to different movements or muscles from month to month. For example, focus on lunge and pull-up variations or hammies and back the one month, and hip thrust and push-up variations or glutes and delts the next month. These are just a few periodization strategies.

Simply progressing to more challenging exercise variations over time is also a method of periodization, as is striving for more range of motion over time. Coaches sometimes plan entire years of training for their athletes, but for most exercisers, this is unnecessary because you can achieve excellent results by having a general plan and simply training according to feel. It's important to progress in your workouts by using better technique or more range of motion, performing more repetitions, and moving on to more advanced exercises over time.

I am now going to teach you how to put it all together by providing sample routines.

Putting It All Together

There are numerous ways to put together a successful routine, and no single program is best for everyone. What works for one person might not work for another, and what works for you this month might not work for you six months from now. That said, some programs are much better than others. I've equipped you with sound information on program design. You've learned the basics and have a good head start. If you're a beginner, stick to one of the routines I've provided. But as you advance, adapt these programs to better suit your preference and physiology.

With bodyweight exercises, it's difficult to recommend repetition ranges because they vary

according to your level of training. For example, three sets of 15 repetitions for the push-up exercise will be too challenging for many people and too easy for others. For this reason, I include only the number of sets next to the exercises.

You'll also see a column for the order of exercises. For the programs with only numbers in this column, perform all the sets for each exercise in the sequence listed (see an earlier section for details about the rest period between sets). Programs with exercises designated as A1 and A2, B1 and B2, and so on, indicate paired supersets where you perform one exercise after the other with no rest between. For those, perform one set of each exercise in the pair one after the other (for example, A1 then A2) before doing the next set of each exercise in the pair. If certain exercises call for fewer sets than others in the pair, perform those sets on the back end of the grouping. For example, if exercise B1 calls for 3 sets and exercise B2 calls for 2 sets, perform exercise B2 during sets 2 and 3 of exercise B1.

The 1 through 4 rating system that describes each exercise within the exercise descriptions is condensed to *beginner* (rating 1), *intermediate* (ratings 2 or 3), and *advanced* (rating 4).

The programs are written as templates so you can learn the patterns of well-planned workouts and substitute exercises according to your current level of fitness. I've included a template for a full-body routine, a lower–upper split routine, a push–pull routine, and a body part split routine.

Full-Body Routine

Perform the routine in table 10.1 two to five times per week (with three times being the most common). Vary the movements throughout the week. This is the style of training that I recommend to exercisers sticking to bodyweight training. This routine includes paired supersets, and the targeted exercises at the end of the workout give you an opportunity to target specific muscles without overdoing it with too much volume.

Table 10.1 Sample Full-Body Routine

Order	Type of exercise	Sample exercises	Number of sets
A1	Knee dominant (quads)	Box squat (beginner) or pistol squat (advanced)	3
A2	Upper-body pulling	Inverted row (intermediate) or side-to-side pull-up (advanced)	3
B1	Hip dominant (hamstrings and glutes)	Reaching single-leg Romanian deadlift with knee raise (beginner) or single-leg hip thrust (intermediate)	3
B2	Upper-body pressing	Torso-elevated push-up (beginner) or one-arm push-up (advanced)	3
C1	Targeted lower-body movement	Elevated calf raise (beginner) or side-lying hip raise (intermediate)	2
C2	Targeted upper-body movement	Sheet rear delt raise (intermediate) or sliding fly (advanced)	2
D1	Targeted upper-body movement	Prone hover (beginner) or scapular shrug (intermediate)	2
D2	Targeted abdominal movement	Crunch (beginner) or hanging leg raise with bent knees (intermediate)	2

Lower–Upper Split Routine

Perform two lower-body and two upper-body sessions each week (table 10.2). Perform all exercises in straight sets: Execute each set consecutively (with rest in between) for a particular exercise before moving on to the next exercise.

Table 10.2 Sample Lower–Upper Split Routine

Order	Type of exercise	Sample exercises	Number of sets
DAY 1 AND DAY 3: LOWER BODY			

Order	Type of exercise	Sample exercises	Number of sets
1	Quads	Full squat (beginner) or Bulgarian split squat (intermediate)	3
2	Hamstring	Reverse hyper (beginner) or Nordic ham curl (intermediate)	3
3	Glutes	Glute bridge (beginner) or single-leg hip thrust (intermediate)	3
4	Ab superset	Bent-knee sit-up (beginner) and side plank (intermediate) or sliding rollout from knees (intermediate) and windshield wiper (advanced)	2
DAY 2 AND DAY 4: UPPER BODY			
1	Pecs	Torso-elevated push-up (beginner) or Hindu push-up (intermediate)	3
2	Back	Sheet face pull (beginner) or sliding side-to-side pull-up (advanced)	3
3	Shoulders	Push-back (intermediate) or feet-elevated pike push-up (intermediate)	2
4	Arm superset	Short-lever inverted curl (intermediate) and short-lever table triceps extension (intermediate) or chin-up (intermediate) and diamond push-up (advanced)	2

Push–Pull Routine

Perform two push sessions and two pull sessions each week. See table 10.3.

Table 10.3 Sample Push–Pull Routine

Order	Type of exercise	Sample exercises	Number of sets
DAY 1 AND DAY 3: PUSHING			
A1	Quads	Sumo squat (intermediate) or high step-up (intermediate)	3
A2	Upper-body pressing	Push-up (intermediate) or wall handstand push-up (advanced)	3
B1	Glutes	Glute bridge (beginner) or single-leg hip thrust (intermediate)	3
B2	Triceps	Short-lever narrow push-up (intermediate) or bench dip (intermediate)	2
C	Abs	Lying straight-leg raise (intermediate) or L-sit (advanced)	2
DAY 2 AND DAY 4: PULLING			
A1	Hamstrings	Partner-assisted back extension (beginner) or paper plate sliding leg curl (intermediate)	3
A2	Upper-body pulling	Inverted row (intermediate) or sliding side-to-side inverted row (advanced)	3
B1	Additional pulling movement for back or hamstrings	Reaching single-leg Romanian deadlift with knee raise (beginner) or one-arm inverted row (advanced)	3
B2	Biceps	Short-lever inverted curl (intermediate) or long-lever inverted curl (intermediate)	2
C	Abs	Bicycle (beginner) or dragon flag (intermediate)	2

Body Part Split Routine

Split the sessions so that you train the entire body over three to five days. See table 10.4.

Table 10.4 Sample Body Part Split Routine

Order	Type of exercise	Sample exercises	Number of sets
DAY 1: QUADS, GLUTES, ABS			
1	Quads	Reverse lunge (intermediate) or skater squat (intermediate)	3
2	Quads	Wall squat isohold (beginner) or step-up with reverse lunge combo (intermediate)	3

Order	Type of exercise	Sample exercises	Number of sets
3	Glutes	Side-lying clam (beginner) or side-lying hip raise (intermediate)	3
4	Abs	Reverse crunch (beginner) or long-lever posterior pelvic tilt plank (intermediate)	2
5	Abs	Side plank (intermediate) or partner-assisted oblique raise (intermediate)	2
DAY 2: PECS, SHOULDERS, TRICEPS			
1	Pecs	Torso-elevated push-up (beginner) or elevated push-up (intermediate)	3
2	Pecs	Short-lever push-up (beginner) or sliding fly (advanced)	3
3	Shoulders	Feet-elevated pike push-up (intermediate) or wall handstand push-up (advanced)	3
4	Shoulders	Push-back (intermediate) or sheet rear delt raise (intermediate)	2
5	Triceps	Table triceps extension (intermediate) or narrow push-up (intermediate)	2
DAY 3: HAMS, GLUTES, CALVES			
1	Hamstrings	Reverse hyper (beginner) or Nordic ham curl (intermediate)	3
2	Hamstrings	Reaching single-leg Romanian deadlift with knee raise (beginner) or single-leg prisoner back extension (intermediate)	3
3	Glutes	Glute bridge (beginner) or single-leg shoulder-and-feet-elevated hip thrust (advanced)	3
4	Calves	Elevated calf raise (beginner) or single-leg elevated calf raise (beginner)	2
5	Calves	Squat calf raise (beginner) or elevated calf raise (beginner)	2
Order	**Type of exercise**	**Sample exercises**	**Number of sets**
DAY 4: BACK, NECK, BICEPS			
1	Back	Sheet pull-up (intermediate) or sliding side-to-side pull-up (advanced)	3
2	Back	Inverted row (intermediate) or sliding side-to-side inverted row (advanced)	3
3	Back	Sheet face pull (beginner) or scapular shrug (intermediate)	3
4	Neck	Manual neck isohold (beginner) or neck bridge (beginner)	2
5	Biceps	Short-lever inverted curl (intermediate) or long-lever inverted curl (intermediate)	2

Specialization Routine for the Glutes

Train the entire body three times per week, with a strong emphasis on glute development. See table 10.5.

Table 10.5 Sample Specialization Routine: Glutes

Order	Type of exercise	Sample exercises	Number of sets
A1	Bridge, thrust, frog pump	Frog pump (beginner) or single-leg shoulder-and-feet-elevated hip thrust (advanced)	3
A2	Upper-body pulling	Inverted row (intermediate) or pull-up (intermediate)	3
B1	Squat, lunge, split squat, step-up, skater squat, pistol	Deficit reverse lunge low (intermediate) or glute dominant skater squat (intermediate)	3
B2	Upper-body pressing	Short-lever push-up (beginner) or self-assisted one-arm push-up (intermediate)	3
C1	Hamstring movement	Frog reverse hyper (beginner) or gliding leg curl (intermediate)	2
C2	Frontal plane hip abduction movement	Side-lying hip abduction (beginner) or gluteus medius hip thrust (beginner)	2

Order	Type of exercise	Sample exercises	Number of sets
D1	Transverse plane hip abduction movement	Side-lying clam (beginner) or side-lying hip raise (intermediate)	2
D2	Kickback movement	Bent-over kickback pulse (beginner) or quadruped leg swing (beginner)	2

Training for Fat Loss

Some people seek to gain maximum muscle right off the bat and go straight into a caloric surplus (bulk). Others want to stay the same weight but improve their body composition by simultaneously gaining muscle and losing fat and going on a maintenance diet (recomp). Others seek to lose fat and go straight into a caloric deficit (cut). Each of these are viable strategies. Most of the clients I train eat a maintenance diet and are striving to recomp. However, I've trained people from all walks of life and have helped numerous clients bulk up or cut down.

For those seeking to lose fat, I'm very glad you found this book. Strength training will help you keep muscle as you lose fat. This is what creates an athletic physique. Strength creates curves!

You must remember that when you train hard, you get hungrier. Most people fail in their fat-loss endeavors because even though they train hard, they fail to achieve a caloric deficit. You need to consume fewer calories than you expend if you want to lose weight. Strength training will cause you to burn more calories and lose weight, but only if you avoid the temptation (especially late at night) to raid the fridge. You will become hungry as you lose weight because your body and hunger hormones seem to want to prevent you from achieving your goals.

You will achieve your optimal physique not through starvation and excessive cardio but through an intelligent combination of dietary, strength training, and movement practices. Here are some rules to remember:

- Consume the appropriate number of calories. A good rule for calories to lose fat is to multiply your body weight (in pounds) by 12 and start there, possibly working your way down to a 10 multiplier. Your daily activity impacts this number, so you might need to increase it. Most people drastically underestimate the number of calories they consume each day. Reducing caloric intake is the single most important variable for losing fat.
- Consume the ideal proportions of carbohydrate, protein, and healthy fat. For protein, make sure you consume at least 0.7 grams per pound of body weight per day, but ideally you should aim for 1 gram per pound of body weight per day. For example, if you weigh 200 pounds, try to consume 200 grams of protein. The rest of your calories can come from a variety of carbs and fat; they're roughly interchangeable.
- Prioritize strength training. This is what builds or holds on to muscle tissue so that you burn solely fat for weight loss. Avoid the dreaded skinny-fat appearance (someone of normal weight but still carrying extra fat and too little muscle) and instead get and stay strong. Perform three to five strength training sessions per week.
- Add cardio sessions or a daily step count goal. For example, you could do 30 minutes of cardio per day three days a week, eventually progressing to 60 minutes per day for five days a week on an elliptical, stair machine, stationary bike, or treadmill. (FYI, incline treadmill is my personal favorite.) Alternatively, you could do briefer sessions via high-intensity interval training. For example, exercise for 20 minutes, alternating between 30 seconds of all-out effort and 3.5 minutes of low-intensity effort. Finally, you could also just aim for 10,000 steps per day and eventually move to 15,000 or even 20,000 steps per day until you reach your goals. Low-intensity cardio, high-intensity cardio, and daily step goals can all work effectively in helping you achieve a caloric deficit.

Closing Thoughts

After reading *Bodyweight Strength Training Anatomy*, you'll have a sound understanding of the muscle groups within the human body and will know plenty of exercises that train each movement pattern and muscle. You will understand basic functional anatomy and biomechanics. You will know how to properly perform bodyweight exercises that are critical to future improvements. You will understand where to start and how to progress so you can develop proper flexibility and strength to keep advancing over time. You will know the important roles that core stability and gluteal strength play in fundamental movement, and you'll understand how to design effective programs based on your uniqueness and preferences. Finally, you'll dramatically increase your appreciation of bodyweight training, the most convenient form of strength training.

ABOUT THE AUTHOR

Bret Contreras holds a PhD in sports science from Auckland University of Technology and a master's from Arizona State University. As a Certified Strength and Conditioning Specialist with Distinction through the National Strength and Conditioning Association, he has dedicated his career to advancing strength training methodologies and is most known for inventing the barbell hip thrust and patenting loaded hip thrust machines.

A leading authority in glute training and strength development, Dr. Contreras is the author of *Bodyweight Strength Training Anatomy* and *Glute Lab* as well as the coauthor of *Strong Curves*. His expertise extends beyond research and writing, as he is also the founder of Booty by Bret, a training platform designed to help individuals optimize their strength and physique. Additionally, he established BC Strength, a company known for innovative strength training equipment such as the Thruster, Glute Loops, and BC T-Bell.

Dr. Contreras is also the visionary behind Glute Lab, two premier facilities—one on the West Coast in San Diego, California, and the other on the East Coast in Fort Lauderdale, Florida—dedicated to pioneering strength training techniques and educating athletes, trainers, and fitness enthusiasts worldwide. Dr. Contreras has published over 50 studies in peer-reviewed journals and lectured around the world, spreading his methods to industry leaders, trainers, and coaches. His work continues to shape the industry, influencing both scientific research and practical application in the field of strength and conditioning.

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